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USING THE COMMUNITY READINESS MODEL AS A FRAMEWORK TO  
UNDERSTAND A COMMUNITY'S PREPAREDNESS TO INCREASE FOOD  
ACCESS

A Thesis Presented

by

Kristyn D. Achilich

to

The Faculty of the Graduate College

of

The University of Vermont

In Partial Fulfillment of the Requirements  
For the Degree of Master of Science  
Specializing in Food Systems

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Thesis Examination Committee:

Linda Berlin, Ph.D., Advisor  
Shoshanah Inwood, Ph.D., Chairperson  
Amy Trubek, Ph.D.  
Cynthia J. Forehand, Ph.D., Dean of the Graduate College

## ABSTRACT

The work described herein is situated in a larger study investigating regional food systems as a method for improving food access for vulnerable communities. This research is part of the United States Department of Agriculture's Agriculture and Food Research Initiative project titled *Enhancing Food Security in the Northeast for Underserved Populations* (EFSNE). This work is ongoing and currently in year five of five. One of the primary objectives in year five is to facilitate the development of Learning Communities in each of the eight communities participating in the study. To do so, the research team planned to develop tools and strategies for facilitation. The team identified a need to match strategies to the specific situation of each community. Thus, a tool was identified that might be useful in assessing the needs and readiness of the communities with respect to their access to healthy food sources. This research simultaneously evaluated the usefulness of the tool while assessing community readiness in six of the eight project communities.

The tool used in this study, was a community level behavioral change model, the Community Readiness Model (CRM). The model was originally developed by the Tri-Ethnic Center in Colorado. We followed the CRM protocol for identifying participants. Twenty-four individuals from six locations involved in the EFSNE study participated in the interview process. The interviews were conducted using the semi-structured interview guide provided in the CRM protocol. We amended the guide by tailoring questions to address food access and ensuring questions were asked at the five levels of influence found in the Socio-Ecological Model. The final guide contained 40 questions; 18 were required by the protocol to score each community. Interviews were conducted by telephone by one researcher, transcribed, and then scored by two researchers according to the CRM protocol.

The mean overall readiness score for the six communities assessed was 4.9 (SD 1.0). This score is firmly rooted in the pre-planning stage of readiness. Scores ranged from 3.7 to 6.2 on the 9-point scale. The CRM scoring protocol coupled with the overall readiness scores indicated that the three urban communities scored higher (mean 5.7, SD 0.6) than the three rural communities (mean 4.1, SD 0.7). While we found a utility to having scores on a continuum to quickly assess the communities of study, we found the qualitative data obtained from the interview process imperative to understanding the scores and the communities.

We concluded that with a few amendments, the Community Readiness Model is a useful methodology to understand food access at the community level. Revealing the stages of readiness for food access change in the study communities contributed to our understanding of what types of programs exist for food access, what the communities' attitudes and feelings are around food access and guided strategy development for moving readiness for change forward. This lens also revealed that there is a need for education on existing and development of new food access policies. Furthermore, this work contributes to the practice of assessing community food security while simultaneously contributing to the development of parameters for community food security theory in food systems scholarship.

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## TABLE OF CONTENTS

<b>ACKNOWLEDGEMENTS .....</b>	<b>ii</b>
<b>LIST OF TABLES .....</b>	<b>v</b>
<b>LIST OF FIGURES .....</b>	<b>vi</b>
<b>CHAPTER 1: INTRODUCTION.....</b>	<b>1</b>
<b>Research Goals.....</b>	<b>2</b>
<b>Origin of the Study .....</b>	<b>3</b>
<b>Methodology.....</b>	<b>5</b>
<b>CHAPTER 2: REVIEW OF LITERATURE.....</b>	<b>9</b>
<b>Systems Thinking and Health Promotion .....</b>	<b>9</b>
Food Systems, City Planners and Sustainable Communities.....	11
<b>Food Security .....</b>	<b>11</b>
Food Security Data Collection .....	12
Who Experiences Food Insecurity .....	13
Reasons for Food Insecurity.....	14
<b>Food Access .....</b>	<b>15</b>
Food Deserts.....	17
Role of Retail in Food Environments.....	19
<b>Community Food Security .....</b>	<b>20</b>
<b>Building Healthy Communities.....</b>	<b>22</b>
Community Capital Influences Community Food Security.....	22
Basic Principles of Community Development.....	25
Engaging Communities in their Development, An Assets-Based Approach.....	26
Assessing Communities for Food .....	27
<b>Community Readiness Model.....</b>	<b>29</b>
A Guide to Assessing a Community’s Readiness .....	29
Adding a Theoretical Lens, the Socio-Ecological Model .....	32
<b>CHAPTER 3: JOURNAL ARTICLE .....</b>	<b>34</b>
<b>Abstract .....</b>	<b>34</b>
<b>Introduction and Background.....</b>	<b>35</b>
Systems Thinking is needed for Food System Change.....	39
Food Systems, City Planners and Sustainable Communities.....	40
Assets-Based Assessment of Community Capital .....	40
Community Capital Influences Community Food Security.....	42
The Community Readiness Model.....	43
<b>Applied Research Methodology .....</b>	<b>45</b>
Discovering the Tool.....	45
Tailoring the Interview Guide for Food Access.....	46
Testing the Tool .....	48
Identifying Key Respondents.....	48
Conducting Interviews .....	50
Analysis.....	50
<b>Results .....</b>	<b>51</b>
Community Readiness Scores.....	51
Interpretation of Community Readiness Scores.....	56

<b>Discussion</b>	59
Application to Food Access Shapes CRM for Future Use	59
Community Readiness for Food Access	61
Community Readiness and Food Systems	64
<b>Limitations</b>	66
<b>Future Work within the EFSNE Project</b>	68
<b>Future Research</b>	69
<b>Conclusion</b>	70
<b>Acknowledgements</b>	71
<b>Bibliography</b>	72
<b>CHAPTER 4: CONCLUSION</b>	77
Contributions to Food Systems Work	77
A Proposed Framework for Community Food Security Planning	78
Future Research	79
Concluding Thoughts	80
<b>BIBLIOGRAPHY</b>	82
<b>APPENDICES</b>	90
APPENDIX A. Figure 2. CRM Methodology Overview	91
APPENDIX B. Table 2. 9-Point Readiness Scale, Descriptions and Strategies	92
APPENDIX C. Table 3. Interview Guide (revised format)	93
APPENDIX D. Scoring Tools	94
Scoring Matrix	94
Anchored Scoring Guide	95
Score Calculation	101

## **LIST OF TABLES**

<b>TABLE 1. SIX DIMENSIONS OF THE COMMUNITY READINESS MODEL .....</b>	<b>93</b>
<b>TABLE 2. 9-POINT READINESS SCALE, DESCRIPTIONS, GOALS AND STRATEGIES .....</b>	<b>92</b>
<b>TABLE 3. INTERVIEW GUIDE, REVISED .....</b>	<b>93</b>
<b>TABLE 4. COMMUNITY DEMOGRAPHICS.....</b>	<b>49</b>
<b>TABLE 5. COMMUNITY READINESS SCORES.....</b>	<b>52</b>
<b>TABLE 6. INFRASTRUCTURE &amp; SUPPORT AND COMMUNITY KNOWLEDGE SCORES.....</b>	<b>52</b>
<b>TABLE 7. KEY RESPONDENT PERSPECTIVES OF SCORES .....</b>	<b>55</b>

## **LIST OF FIGURES**

<b>FIGURE 1. CONNECTEDNESS OF “HEALTHY” .....</b>	<b>10</b>
<b>FIGURE 2. OVERVIEW OF METHODOLOGY .....</b>	<b>53</b>
<b>FIGURE 3. OVERALL READINESS SCORES FOR EACH OF SIX NORTHEAST COMMUNITIES .....</b>	<b>53</b>
<b>FIGURE 4. MEAN SCORES FOR EACH DIMENSION AND EACH COMMUNITY.....</b>	<b>91</b>



## **CHAPTER 1: INTRODUCTION**

Little research exists that examines which community-level characteristics are associated with a community's capacity to respond to food access and insecurity. One source of data for the measurement of food insecurity in the U.S. is the measurement of food deserts. A food desert is an area where people have limited access to a variety of healthy and affordable food. Dutko, Ver Ploeg, and Farrigan (2012) found that areas with higher levels of poverty, regardless of rural or urban designation, are more likely to be food deserts. Additionally, in all but very dense urban areas, the higher the percentage of minority population the more likely the area is to be a food desert. Blanchard and Lyson (2009) conclude that individuals who live in food deserts are less likely to consume fruits and vegetables than people who live in areas with greater access to food. One barrier in securing healthy food includes a dearth of high quality food stores and an excess of lower quality ones (Kaiser, 2008). The Blanchard and Lyson study shows that community-level factors such as access to food influence the quality of one's diet. Therefore, research is needed to build theory and methodology applicable to communities in how to respond to the problem of food insecurity and in particular limited food access. Furthermore, understanding the factors that increase a community's capacity to respond to food insecurity can better inform regional actions.

How to increase food security of underserved individuals through regional food systems is a worthy exploration into this field of systemic food environment change. This study is an attempt to look at this problem from the ground up by evaluating the readiness of six communities for increasing their access to healthy foods. In addition to the findings on the regional production, local distribution and consumption of foods, the

data from this research will be considered in development of the Community Involvement Plans (CIPs) to encourage the communities to move towards the goal of increasing healthy food access. The purpose of the CIP is to develop strategies and activities to engage community members by, (1) involving communities meaningfully in achieving research objectives; (2) fostering awareness among project communities affected by food system problems; and (3) building community knowledge and capacity to work on food system problems (Ruhf, 2013). Subsequently, the findings from this study will be used to develop targeted strategies for the CIPs so that information is shared in an accessible manner based on the readiness of the communities so that the behavior change is sustained.

### **Research Goals**

There were two objectives for this study. The first was to research whether the Community Readiness Model applies to communities addressing food access issues, and if so, whether there is a utility in revealing the stage of each of the communities. The second was to produce data that will aid EFSNE in the development of the Learning Communities (LCs). The goal of the LCs is to facilitate a process and develop skills within the communities such that they will be able to determine how to take next steps to address the problem of limited food access. Thus, the working research question for this study became, *“Does the Community Readiness Model effectively inform an assessment of a community's preparedness to enhance their food access?”*

To be clear, this study is not a community food security assessment, but an assessment of the readiness for change at the community level. Factors in a food security assessment could be considered a part of the readiness score for change and be influential

in developing strategies to increase a community's readiness for change towards sustaining more healthy food access. Conversely, this tool could be included in a community food security assessment tool kit. Thus, this research will propose how it can be enhanced by the community capital framework and embedded into a community food security assessment tool kit similar to that compiled by the U.S. Department of Agriculture (USDA) Economic Research Service (ERS).

### **Origin of this Study**

Goetz et al. (2010) posit that regional food systems (RFS) offer significant potential for improving food access for vulnerable communities while strengthening local economies. To address the issue, Goetz et al. (2010) are evaluating multiple consumption, distribution and production components for RFS in the Northeast along with their associated feedbacks and interdependencies, across multiple scales and nested supply chains for a “healthy food basket.” They are examining structural, institutional, community and individual dimensions of regionally produced, healthy food consumption in disadvantaged communities in eight specific geographical locations across the Northeast.

Goetz et al. (2010) developed five objectives to study a community's food environment (the totality of stores, markets, community and individual gardens, etc.) utilized to supply food to residents. Their first three objectives seek to survey consumers and stores to understand purchasing habits, opportunities and barriers to accessing healthy foods, quantitatively map and model food supply chains and use datasets to study the capacity of the Northeast to satisfy more of its own food needs. Objective four seeks to disseminate the knowledge and research insights generated to engage policy-makers,

producers, distributors, consumers and other stakeholders. More specifically, this objective includes the facilitation of site-based Learning Communities by holding quarterly meetings where participants will build their capacity by sharing challenges and resources and learn how to collect and interpret data and develop or strengthen outreach and communication networks in project areas. This work is also supported by production of educational materials in various formats (e.g., site case studies, fact sheets, briefs, bulletins, newsletters and updates in either/both digital or hard copy) (Goetz et al., 2010). Objective five proposes to prepare graduate and undergraduate students associated with the eight academic institutions collaborating on the grant with diverse skills needed to develop sustainable food systems. Our study, like others at Delaware State, West Virginia State, Tufts and Pennsylvania State Universities, leverages the work of Goetz et al. to enhance the engagement of students. Different approaches will generate needed insights about new options for training students to work on regional food systems.

The team of researchers and practitioners working with Goetz has formed a variety of sub-teams within the larger focus of the proposed work (from here on referred to as EFSNE). One sub-team is the Outreach Team. This team is working to achieve the goals set forth by objective four and has a specific focus on the facilitation of the Learning Communities. The project has eight geographically distinct sites; three are rural and five are urban. The goal is to involve these communities throughout the project timeline in order to derive meaningful findings about increasing regional food in these locations and support them as they learn about their own local food situation and seek to make any changes. Given the diversity and vastness of the project, the Outreach Team developed a “Community Involvement Plan” (CIP) for each community. Implementing

the CIPs involves the eight Location Leaders working with the Site Leaders to help them identify players in the community, keep the site's store owner(s) involved, decide on activities that would engage the community, and monitor activities and collect relevant data and feedback for the project (Ruhf, 2013). During a conference call in December of 2012 to assemble these documents (the CIPs for each site), Outreach Team members were developing a menu of community involvement tools and activities. The Team determined that to increase the effectiveness of the Learning Communities, there was a need needed to consider what type of facilitation would best support the eight individual communities to make a change towards increasing food access while simultaneously considering the difference across communities.

In reviewing the on-going work in each of the communities involved in the EFSNE project, it is easy to see that most communities are very different from another. Thus, what works in one community may be ineffective in another community. As the project seeks to facilitate Learning Communities in each of the eight locations, utilizing a tool that can stage the initial readiness the communities exhibit could be extremely helpful. Additionally, the tool holds potential to be used over the duration of the EFSNE project to reassess the communities after some of the initial interventions are introduced by the Learning Communities.

## **Methodology**

The Stages of Change – pre-contemplation, contemplation, preparation, action and maintenance – developed by Prochascka and DiClemente (1984) was the inspiration for this work. The model remains the basis for developing effective interventions to promote health behavior change. Its tenets describe how people modify a problem

behavior or acquire a positive behavior through intentional change. Further, it focuses on the decision making of the individual and may help to explain differences in persons' success during treatment for a range of psychological and physical health problems. The Stages of Change model has been widely applied in behavior modification techniques around food, food environments and obesity (Prochaska, DiClemente, & Norcross, 1992). A tool based on this model would allow the team to develop tools and activities that meet each community at its own stage of readiness for change. One disparity is that the Stages of Change model is focused on individual behavioral change (i.e. – drinking less soda) and we were looking to classify community level behavioral change (i.e. – increasing access to healthier food alternatives at the community level).

Community-level behavior change is a dynamic and complex process in need of both theory and assessment metrics situated in behavior change but inclusive of culture and community development. Community food security investigations exist and attempt to provide theory (Anderson and Cook, 1999) to the practice of defining community food security. While many community food assessments exist, few measure community-level factors such as the nature and sources of the available food supply as well as the community's attitudes and beliefs toward food access change. The latter is what this study attempts to capture.

A literature review of previous works on community level health behavior change initiatives identified the Tri-Ethnic Center's Community Readiness Model (Plested, Edwards, & Jumper-Thurman, 2006). This model showed promise as a guide from which to develop a set of questions to investigate how community leaders stage their communities in their readiness to increase food access. The CRM provided a template

from which to develop an interview guide to assess a community's readiness to improve their food access. In addition, socio-ecological model (SEM) and asset-based community development theory and practice show promise in the development of additional questions and qualitative data analysis. Recognizing that most public health challenges, such as increasing healthy food access, are too complex to be sufficiently understood and addressed from single level analyses, the SEM includes a more comprehensive approach that integrated multiple levels of influence to impact health behavior and ultimately health outcomes (Robinson, 2008). Those levels of influence included intra- and interpersonal factors, community and organizational factors (or institutional), and public policies (Gregson, 2001; Robinson, 2008). By framing the strategies for each stage of readiness through the lens of the social-ecological model, it utilizes the full array of environmentally based strategies for public health enhancement.

Since the goal of this study is to assess readiness for a behavior change at the community level, it is important for community development theory and practice to define our work. In a community, one of the most valuable assets is a community's capital. Most of the time "capital" is defined as wealth that is used to create more wealth. Given that this concept can be applied to other resources as well, one of the first steps in mapping a community's assets is to identify the capacities of residents, organizations and institutions to facilitate the desired change (Green & Haines, 2012). Smith and Morton (2009) found the social norm of the community to be important in determining access to food resources including traditional methods and safety net programs. Thus, there is value in assessing how that social norm plays into the readiness a community exhibits to increase its access to healthy, fresh foods.

Systemic approaches to food access may be more cost effective, reach larger numbers of people and prove easier to sustain than individual approaches to behavior change (Clancy, 2004). What follows is a review of literature from the fields of food security, public health, community development, behavioral change theories and needs assessment that will strengthen the case for a community –level assessment of readiness for change towards increased healthy food access that takes a systemic approach.



## **CHAPTER 2: REVIEW OF LITERATURE**

### **Systems Thinking needed for Food System Change and Health Promotion**

Researchers identified a need for multi-level systemic research and strategies for food system change (Best, 2011; Born, 2013; Clancy, 2004; Clancy, 2013; and Hamm, 2009). Community health quickly transfers into the public health arena when we consider the impact of food on that community's health. Effectively a complex problem, community health promotion, which often calls for behavior change, requires intervention at many different scales of the system and the engagement of individual agents and organizations across those scales ranging from home, school and work environments to communities, regions and entire countries (Finegood, 2011). But, a shared understanding of the multilevel influence and the value of multilevel interventions (Best, 2011), clearly captured by the socio-ecological model (Stokols, 1996), remains undefined. This thesis is a call to apply systems thinking to health promotion.

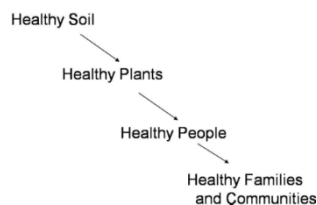
Methodological approaches to systems-level research include theories and practices that embrace complexity, develop an agenda that incorporates the knowledge of small-scale producers who grow most of the food and frame the problems as ones of power, politics and social environmental justice. This requires a system that hinges upon social values and operating principles organized from the ground up (Born, 2013).

Hamm (2009) presents a specific strategy for visualizing a more healthy food system. His definition of a healthy food system is one in which all members of society have daily access to a diet that allows for a full life as it is impacted by food that does not deplete natural resources for future generations and allows for a sustainable livelihood by

those involved in producing, processing, distributing, preparing and managing waste for our daily food supply (Hamm, 2009). Hamm suggests seven principles should serve as endemic cornerstones to a healthy food system. Three are presented here.

“A food secure community,” encompasses elements of the remaining six.

Community food security is defined as “all community residents obtaining a culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self-reliance and social justice” (Hamm and Bellows, 2003, p. 37). The key here is the identification of culturally acceptable foods. In this study, increasing access to safe, healthy and fresh foods is the goal, so we strive to capture the community’s attitudes and feelings around food access in addition to the availability of food. This leads to Hamm’s second principle, community based, where sustainability implies that steps taken to improve the situation also serve to improve the connectivity between, and the joint resolution of, problems that need improvement. Additionally, community based approaches provide opportunities to approach many other issues simultaneously (e.g. land preservation for food production and community economic and recreational use). The third principle, connecting healthy across the layers of the system (see Figure 1) from healthy soils to plants, people and finally families and communities making the concept of health operationalized within each layer, allows for investigation into the upstream and downstream impacts that help to improve the health of the entire system (Hamm, 2009).



**Figure 1.** The connectedness of “healthy” (Hamm, 2009, p. 247).

**Food Systems, City Planners, Sustainable Communities.** One context in which community development and food systems professionals can come together is through city, county and regional planning to create sustainable communities. According to Clancy (2004), planners should make connections to the food system to identify the interconnection between food and other planning concerns like land development. While food has not been perceived as a public good like air and water some food issues have been acknowledged as public goods: food safety and food access. Food safety is highly regulated through state and national governments. Access was first addressed by the government during the Great Depression and continues to be addressed today through programs like WIC, SNAP and school lunch (Clancy, 2004). Food security remains unaddressed as a public good. It can be thought of as the ability to produce, reliably access, and effectively use food appropriate to one's culture now and into the future (Clancy, 2004; Food and Agriculture Organization, 1996). The quality of life of a city or town has to be planned (Roberts, 2001, as cited in Clancy, 2004). Food contributes significantly to the reality and perception of a "good life." Increasing interconnectedness between urban and rural planning and the food system could bring significant social and economic benefits in addition to enhanced community food security (Pothukuchi, 2004).

### **Food Security**

The definition of food security by the Food and Agriculture Organization (FAO) is "all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (FAO, 2006, n.p.). In more simple terms, the USDA, defines food security as "access by all people at all times to enough food for an active, healthy life"

(Coleman-Jensen, Nord, Andrews & Carlson, 2012, p. 2). Food security is often discussed and measured in three metrics: food availability, food access, and food utilization. Food availability is the physical presence of food either as a result of cultivation, manufacturing, or importation. Food access is the way people obtain available food through a combination of home production, purchase, barter, gifts, borrowing and food aid ensured when citizens have adequate resources to obtain the food. Food utilization is the way people use food dependent on the quality of food and people preparation methods, nutritional and cooking knowledge and health status (Schattman, Berlin, Nickerson, Kahler & Pipino, 2011). Conversely, food insecurity is defined by the USDA as a household-level economic and social condition of limited or uncertain access to adequate food (Coleman-Jensen et al., 2012).

***Food Security Data Collection: The Food Security Supplement to the Census Bureau's Current Population Survey (CPS).*** Each year food security data is generated from the USDA's annual survey as a supplement to the monthly Current Population Survey (Coleman-Jensen et al., 2012). In 1995, the USDA submitted the Food Security Supplement to the Current Population Survey (FSSCPS). Although this measure has evolved over time, it continues to provide an accurate measure and serve as a source of monitoring food security and the conditions that contribute to food insecurity. The 2011 survey covered 43,770 households, a representative sample of the U.S. civilian population of 119 million households (Coleman-Jensen et al., 2012). This data helps public officials, policy makers, service providers, and the public at large to assess the changing needs for assistance and the effectiveness of existing programs. In the context of current movements in the U.S. to expand and enhance food security and eliminate

remaining hunger through planning and action at the community level, determining the food security status of households that represent communities can provide a vital tool.

The analysis of the FSSCPS data indicates that at the household level many low-income households appear to be food secure and a small percentage of non-poor households appear insecure. The reasons for this are not yet well understood, although they probably include unexpected changes in circumstances, variations in household decisions about how to handle competing demands for limited resources, and geographic patterns of relative costs and availability of food and other basic necessities, such as housing. The food security measure provides independent, more specific information on this dimension of well-being than from what can be inferred from income data alone (Coleman-Jensen et al., 2012). A more complete picture can be understood when combined with an assessment of community level factors.

***Who Experiences Food Insecurity?*** Coleman-Jensen, Nord, Andrews and Carlson (2012) report that 85.1 percent of U.S. households were food secure through 2011. The remaining 14.9 percent of households were food insecure. One-third of food insecure households, 5.7 percent, reported having very low food security; food intake of some household members was reduced and normal eating patterns were disrupted at times during the year due to limited resources. This is a slight increase from the 2010 data (5.4 percent), reflecting similar reporting in 2008 and 2009 (Coleman-Jensen et al., 2012). The prevalence of food insecurity is associated with specific demographic and economic characteristics. These vulnerable populations include women (especially low income pregnant and lactating women), victims of conflict, the ill, migrant workers, low-income urban dwellers, the elderly and children under age five (GRACE, n.d.). For

example, 41.1 percent of households with incomes below the federal poverty level were food insecure and 7.0 percent of those with incomes above the federal poverty line were food insecure (Coleman-Jensen et al., 2012).

One reason why individuals above the poverty line remain food insecure is due to what is called the cliff effect. The cliff effect is defined as an overall decline in household resources when working poor families become ineligible for government assistance (Prenovost and Youngblood, 2010) because their income exceeds 200 percent of the federal poverty level.

***Reasons for Food Insecurity.*** Food security is the result of a convergence of numerous variables including food supply, access, utilization and is influenced by social, geographic, political and temporal systems as well as local, regional and global scales (FAO, 2006). As a result, the reason one person, household, community or nation experiences food insecurity is vastly different from the next. Poverty is a driving factor in determining the amount of resources to purchase or procure food (FAO, 1999). Poverty and other socioeconomic and political issues foster the bulk of food insecurity around the globe (FAO, 1999). These issues can affect food distribution and influence policies that command production of commodity crops for exporting and biofuels rather than growing food crops. Other issues that impact food security include natural disasters and climate change by altering the types of crops that are available, and also the rise in food prices thereby decreasing the ability for those suffering from poverty to purchase food (GRACE, n.d.).

## **Food Access**

There is enough food in the world to feed the global population. The problem remains equitable access to that food. Disadvantaged communities are disproportionately affected by lack of access to healthy, affordable foods and diet-related diseases (Morland, Wing & Roux Diez, 2002; Powell, Slater, Mirtcheva, Bao & Chaloupka, 2007; White House Task Force, 2010 and Zenek et al., 2005). The largest barriers disadvantaged individuals face in securing food include economic access, transportation to the healthy food sources, a dearth of high quality food stores, and an excess of lower quality ones (Kaiser, 2008). Additionally, other barriers include inadequate coverage of and low participation in SNAP and other nutrition assistance programs and higher food costs (Anderson, 2007; Haering & Syed, 2009). Research also highlights variables affecting individual food choices, such as taste, convenience, price and health. Such individual food choices are themselves strongly shaped by broader cultural, economic and societal contexts. Therefore, systemic approaches to food access may, by design, be more cost effective, reach larger numbers of people and prove easier to sustain than individual approaches to behavior change (Glanz & Yaroch, 2004).

For example, Smith and Morton (2009) identified that the social/cultural environment, household economics and the location of one's home influence food choice and access among residents living in food deserts in rural Minnesota and Iowa. They determined that although personal factors impact eating behavior for rural people, it is the physical and social environments that place constraints on food access, even in civically engaged communities (Smith & Morton, 2009).

Interestingly, individual-level estimates on food security are prolific yet the community level efforts are less so. This is just the opposite for food access. Much of the research on food access has focused on measuring neighborhood-level food access especially in low-income neighborhoods and had less focus on the individual-level (Ver Ploeg et al., 2012). The USDA has been working on developing indicators for barriers to healthy food access since about 2004. The results of this work are two publically available reports titled *Access to Affordable and Nutritious Food Measuring and Understanding Food Deserts and Their Consequences* (Ver Ploeg et al. 2009) and *Access to Affordable and Nutritious Food: Updated Estimates of Distance to Supermarkets Using 2010 Data* (Ver Ploeg et al., 2012).

The USDA reports mentioned above define two of the major indicators for food access as the distance between the food source and the majority of citizens, and transportation (or ease of effort to obtain) to that food source. In their report, Ver Ploeg et al. (2012) indicate that half of the U.S. population lives within two miles of three supermarkets (a substantial enhancement from the 2009 report) and 80 percent live within five miles. This result reflects the opening and closings of supermarkets, changes in the distribution of the population in relation to supermarkets and the effects of the 2007-2009 recession. The recession is thought to be the cause of the expansion of the number of low-income people and areas; an increase from 8.4 percent in 2006 to 9.7 percent in 2010 (Ver Ploeg et al., 2012). While the percentages make the increase appear minimal, this is an increase of 7.2 million people.

One main limitation to this work is that the researchers focus on area-based measures of food access. This implies that everyone in the same area has the same access



to healthy food. But individual and household access is influenced by much more. Income, vehicle ownerships, social and family networks and time are all examples of individual or interpersonal levels of social capital that affect access to healthy foods (Crowe & Smith, 2012). This limitation directly influences policy decisions (Colmen-Jensen et al., 2012). It is worth noting that if individuals who lack access are concentrated in neighborhoods then policy strategies that bring healthy food retailers to those neighborhoods may be appropriate. On the other hand, if individuals with access barriers that include personal transportation or economic resources, personal vouchers to offset transportation costs of getting to the store or providing stores with funds to deliver groceries might mitigate those access problems. Additionally, the study looks solely at larger (\$2 million plus in annual sales) supermarkets. Some smaller stores may carry healthy items and recent Federal interventions have focused on increased access through farmers' markets and alternative supply distribution chains (Colmen-Jensen et al., 2012).

***Food Deserts.*** As previously introduced, food deserts have been described as regions of the country that often include large proportions of households with low incomes, inadequate access to transportation and a limited number of food retailers providing fresh produce and healthy groceries for affordable prices (Dutko et al., 2012). While the concept of food deserts and how food access limitations are measured continues to evolve, some characteristics and influential factors of food deserts are well researched. For the USDA, the Economic Research Service estimated food desert locations using census tracts as the geographical unit of analysis. This methodology results in the definition of food deserts being low-income census tracts where a substantial number or share of residents has low access to a supermarket or large grocery

store (Ver Ploeg et al., 2012). Again, the distance to the grocery store, 0.5 to 1 mile defines access for urban residents and 5-10 miles for rural residents, and the access residents have to transportation, mainly a personal vehicle. While these factors of food deserts are well documented, some contend that these definitions of food deserts apply a reductionist view to what actually defines a food environment for an individual, household or community (Walker, Keane, & Burke, 2010).

Smith and Morton (2009) worked with USDA classified food desert census tracts in Minnesota and Iowa. They found that barriers to food are not just geographical. First, their results suggest that personal and household determinants of food, like historical experiences with food, food characteristics such as taste, appearance, texture, and physical food properties, knowledge and perceptions of the nutritional content of food, household and family structure, healthy status and household economics play a large role. This phenomenon is well known through the results of nutrition education and behavior research as well as included in the Food Security Supplement administered through the U.S. Census and Current Population Survey (CPS). The CPS is a monthly labor force survey in which interviews are conducted in approximately 54,000 households across the nation. Specifically, the food security supplement poses questions about food expenditures, minimum food spending required for the household, food program participation, concerns about food sufficiency and ways of coping with not having enough food at the household level (Current Population Survey, 2012). Secondly, social and cultural environments influence access and choice as do the structure of place or the external environment. Through their process, Smith and Morton (2009) found the social

norm of the community to be important in determining access to food resources including traditional methods and safety net programs.

Alviola, Rodolfo, and Thomsen (2013) conducted a similar study in Arkansas. They too used the USDA data to determine the food deserts tracks in urban and rural areas of Arkansas. They used this data to initiate their study in hopes to then further define the determinants of food deserts in their state. Their findings contradicted those of the USDA 2009 and 2012 studies as it applied to Arkansas (Ver Ploeg et al., 2009, 2012). They found no meaningful evidence that urban communities with higher minority populations or communities with lower median income face less access to grocery stores. They did find that Arkansans living in food deserts do appear to have an increased exposure to fast-food restaurants and convenience stores. They concluded that being in a food desert may be a disadvantage to diet quality both in terms of less access to healthy foods and greater access to unhealthy foods.

Taken together, the studies by Alviola et al. (2013) and Smith and Morton (2009) suggest that there are many diverse factors that contribute to defining a food desert, and we are only beginning to grasp the range of possibilities (e.g. socioeconomics, culture, social capital, the larger food environment).

***Role of Retail in Food Access/Deserts.*** Lack of access to affordable healthy foods is suggested as a contributory factor to poor food consumption patterns (Acheson, 1998). The distance to stores, large grocery stores, is a primary measure for food access. Large grocery stores are those producing two million dollars or more in sales in the past year. While this is an industry standard, this measure has not been adjusted for inflation in several years. Additionally, there is a need to consider how other retail establishments

including community based establishments like corner stores, smaller supermarkets and farmer's markets impact access or barriers to access for the residents (Walker et al., 2010).

There remains little empirical evidence that a built-environment will dramatically shift consumption patterns even though this theory has dominated food desert literature in recent years. Yet, there has been an expansion in the bifurcated retail landscape where growth is evident both in the high end, whole foods markets and dollar stores. While some urban and rural areas are hosting larger retail chains like Walmart and Krogers (Donald, 2013), others suggest the food environment assessments should consider the distance to farmers' markets as a measure of food access (Sage, McCracken & Sage, 2013). Studies vary widely in their findings related to access of fruits and vegetables and the consumption of these foods (Hosler, Rajulu, Fredrick, & Ronsani, 2008; Pearson, Russell, Campbell & Barker, 2005). Thus, Donald's (2013) request for an increase in pre/post assessments similar to the seminal works of Wrigley in the late 90's and early 2000's is crucial in future assessments of food access and any accompanying policy recommendations.

### **Community Food Security**

Food security has many dimensions and can be studied at many different levels. The dimensions include access, availability, utilization of and to food and stability of the food supply. Community food security is "a situation in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food systems that maximizes community self-reliance and social justice" (Hamm & Bellows, 2003, p. 37). Most definitions of community food security are a result of the evolution of

hunger work and often contain seven components: food access, food safety, nutrition, sustainable agriculture (food production), local food systems (community self-reliance), culturally acceptable food and social justice (Lutz, Swisher & Brennan, 2010; Anderson & Cook, 1998).

Lutz et al. (2010) explain that the concept of community food security (CFS) is unique in its intention to examine the complex relationships between crucial characteristics and components of food systems. This holistic approach involves issues from community members' ability to obtain food, to the social welfare of the workers and participants in the food system. Since community food security spans such a vast set of characteristics and an innumerable combination of those characteristics, Anderson and Cook (1999) posit that CFS theory would define the nature of food secure communities, underlying political philosophy, offer a clear definition of community food security and outline measures of community food security to both inform the practice and guide policy. A full CFS assessment would include measures of nutritional status, food consumption, food practices, food and nutrition knowledge and attitudes, social capital, food systems descriptors and economic and social system descriptors that affect the capacity for change in the food system (Anderson and Cook, 1999).

McCullum, Pelletier, Barr & Wilkins (2002) suggest that community food security, while it is in need of theory, is inherently an analytical framework that includes three basic components: process, projects and policy. Furthermore, McCullum et al. (2002) stated that qualitative research is a useful because of its ability to explore context-dependent meanings of complex issues like community food security.

## **Building Healthy Communities**

Food security is closely linked to livelihood security. Food security and access is often measured in tangible metrics like distance, vehicle ownership, presence of food, education on a balanced diet and food preparation. However, considering factors like social capital, community attitudes, and community awareness of the issues that could affect their health is pivotal in understanding the extent to which a community can increase its healthy food access and then consumption (dePee, 2013).

***Community Capital Influences Community Food Security.*** To date, there is no specific theory that defines community food security and how to go about measuring it. Anderson and Cook (1999) identify key areas to focus on and how to organize the work within the larger community instead of its traditional focus on individuals or households. The concept of community food security can improve the understanding of the food security barriers at several levels of analysis and help policy-makers and practitioners improve food security in a given area (Anderson and Cook, 1999). Historically, the unit of analysis for food access was seen as individual or household level. Food security is traditionally assessed by anthropometric measures or individual and household food intake surveys or indirectly through proxies such as poverty, real wage rates relative to food prices, employment and demand on the emergency food supply system (FAO, 1996). Investigating food security at the community level has a conceptual richness and deals with a scale of analysis that is still under investigated in food security work. In addition, it builds from the methodological and theoretical strength found in individual and household level work.

Anderson and Cook (1999) explain that three streams of practice and disciplinary orientation need to converge to create CFS.

1. *Community nutritionists and educators* – Focus on providing sound, effective nutrition education who often stress the importance of community factors in impeding or promoting food access and the need to include members of the population being served in decision making and planning.
2. *Progressive agricultural researchers and grass-roots activists* – Focus on food producers and more environmentally-sound food production practices who expanded their initial concerns about the environmental costs of current food production systems to include the sociopolitical dynamics of control of food production systems, thus illuminating social costs related to food systems including poverty and hunger. Advocates now look for production, distribution and marketing mechanisms that will provide food security for people who are increasingly underserved – examples of these mechanisms include CSAs and farmers' markets that are subsidized for low-income consumers.
3. *Anti-hunger and community development researchers and activists* – Focus primarily on seeking more effective ways to reduce hunger and poverty.

These disciplines, professions and organizations make the development of a theory difficult because the purpose, form and use of conceptual models vary across different fields. They work better in practice – i.e. the Community Food Security Act in the 1996 Farm Bill and the establishment of a national Community Food Security Coalition (Anderson and Cook, 1999).

Regardless, the first step in developing a theory of CFS is identifying the collective components of food-secure communities. Surveys are effective ways to accomplish this task, but one of the first steps is to define the term community (Green & Haines, 2012). The next step is to clarify the concept of food-secure community by specifying the characteristics that distinguish between a food secure and insecure community for the purpose of the survey design. This can be done at two levels – contextual or global. The contextual level results from aggregation of individual or

household-level data. It includes average household income, proportion of households that are food secure or insecure, participating in local food production and receiving food from private emergency food assistance programs (Anderson and Cook, 1999). On the global level, factors include the presence of a large supermarket, farmers' market or shared gardening space in the community and whether the community has a local food policy council (Anderson and Cook, 1999).

A key element of conceptualizing a theory of food security at the community level is knowledge of indicators or best measures positively associated with the likelihood of a community responding to the problem of limited food access. Crowe and Smith (2012) identify the community capital framework as an effective lens to measure a community's capacity for change.

***Social Capital.*** Crowe and Smith (2012) stress the importance of utilizing bridging social capital – i.e. capital that connects across different groups in the community as well as to other communities. The interconnectedness of bridging capital is beneficial when looking to increase a community's food access versus the historical focus on household or individual food access. In addition, civic-ness can also aid in increasing food access where residents of communities located in food deserts with a high level of civic structure are significantly less likely to be food insecure (Morton, Bitto, Oakland & Sand, 2005). Additionally, Martin, Rogers, Cook and Joseph (2004) found that households in Connecticut of similar limited financial or food resources were less likely to experience hunger if the household had higher levels of social capital.

***Cultural Capital.*** Cultural capital is often described as the least tangible of a community's capitals and found in three states: embodied, institutionalized, and



objectified (Bourdieu, 1986). These states of cultural capital inform how we view the world, what we take for granted, what we value and what things we think we can change. Communities that are able to implement a variety of recreational and social opportunities may have the values and beliefs conducive for other types of community betterment, such as increasing healthy food access (Crowe & Smith, 2012).

***Human Capital.*** Human capital includes personal assets like health, formal education, skills, intelligence, leadership and talents that strengthen one's ability to earn a living and provide for one's community, family and self –improvement (Crowe & Smith, 2012). Risk factors like lower levels of educational attainment, poor health, economic hardship and lack of food preparation skills are most often associated with household level food insecurity. All of which contribute to an understanding of a community's human capital (Alaimo, 2005).

The community capital framework presented here is directly aligned with community food security by the work of Crowe and Smith (2012). But Flora, Flora and Fey (2004) argue that communities are most successful in supporting healthy sustainable community and economic development when all seven capitals are addressed. They propose that in addition to human, social and cultural capital addressed by Crowe and Smith (2012) that natural, political, financial and built capital is included in an assets-based approach to community assessment.

**Basic Principles of Community Development.** Community development is a planned effort to build assets that increase the capacity of residents to improve their quality of life. But, what defines a community? Green and Haines (2012) explain that community can be defined by three elements – territory or place, social organizations or

institutions that provide regular interaction among residents or social interaction on matters concerning a common interest. In addition, social and economic forces change the nature of community and place-based issues, which continue to influence the quality of life for most people.

Sustainability is often considered an outcome of community development but Green and Haines view it as a guiding principle to the process of community development practice. This approach examines the interconnections between local economic, social and environmental issues. The success of these sustainability programs will depend largely on identifying the key assets or resources that are available at the local level (Green & Haines, 2012). This also advocates for an assets-based approach to evaluating a community's capital, which is explored in the following section.

### **Engaging Communities in Their Development; An Assets-Based Approach.**

Kretzmann and McKnight defined assets as the “gifts, skills and capacities” of individuals, associations and institutions” within a community (1993, p. 25). A focus on community assets rather than needs represents a shift in how community development researchers and practitioners approach their work. If a community begins by assessing its needs, it often jumps immediately to problem solving rather than identifying its goals and strengths (Green & Haines, 2012). In addition, asset building has some interesting similarities to social capital theory where social capital becomes the basis for building other community assets such as human and financial capital (Crowe & Smith, 2012). Asset mapping is the identification of economic development opportunities through the mapping of available skills and work experience (Green & Haines, 2012). One of the most valuable assets is a community's capital, which can be measured in seven forms -

physical human, social, financial, environmental, political and cultural (Flora, Flora & Fey, 2004).

In sum, the central goals of the assets-based development approach are twofold. First, it often provides stronger ties between institutions and the residents in a community. Secondly, identifying assets can help develop the leadership to mobilize residents and building the capacity to act in the future. Finally, an assets-based assessment results in a catalog of physical, social, political and cultural resources. Organizing these assets within the community capital framework allows the assets to be beneficial to the community by reinvesting them in one or more of the community capitals (Flora, Flora, & Fey, 2004; Crowe & Smith, 2012; Emery, Fey & Flora, 2006 and Green & Haines, 2012).

**Assessing Communities for Food.** Community food security assessments attempt to expand what is understood by household food security by investigating underlying social, economic and institutional factors within a community that affect the quantity and quality of available food and its affordability. Recall, the financial resources for and cultural preferences of food largely define assessments of household food security (Cohen, Andrews, & Kantor, 2002).

There are many assets-based assessments seeking to engage the community citizenry for a wide range of community issues (Stith et al., 2006; Kegler et al., 2000; Foster-Fishman et al., 2007; Gerlach & Loring, 2013; Camp & Sisson, 2013 and Aboud, Huq, Larson & Ottisova, 2010). The main purpose for assessing community food security is to enhance the collective understanding of the resources and gaps present with

the community's food system to then create common goals, strategic plans and policy recommendations to inform community food security into the future.

The rise of community food security is evidenced by the work sponsored at the federal level to define community food security and develop tools that support community-level stakeholders in their attempts to develop strategic planning strategies for increased food security for all members of the community (Cohen et al., 2002). Pothukuchi (2004) argued that the first step in planning for community food security is a community food assessment. He further contends that community food assessments should be part of community planner's toolbox. And, community food assessments can improve community food security planning. Pothukuchi's (2004) work evaluates nine community food assessments from across the country tallying categories of information that can be assessed by a community food assessment. These categories can be assessed with an assets-based methodology and utilized the community capital framework proposed by Crowe and Smith (2012) and Flora, Flora and Fey (2004). Community food assessments are part of a tool kit that can be used to assess community food security. Taken together, the tools in a community food security tool kit can develop understanding of food access at six levels:

1. The community's socioeconomic and demographic characteristics
2. The community's food resources
3. An assessment of household food security within the community
4. An assessment of food resource accessibility
5. An assessment of food availability and affordability
6. And, an assessment of community food production resources.

## **The Community Readiness Model**

**A Guide to Assessing a Community's Readiness.** The current community food assessment tools are adept at assessing the physical resources to expand food security. But, they do not take into account the community's readiness for the change that comes with leveraging these resources. Many different sectors of a community may be affected by a community problem. This often results in fragmented intervention efforts. To affect long lasting community change, it is essential that a community pull together in the development of interventions appropriate to their unique situation (Plested, Jumper-Thurman, Edwards, & Oetting, 1998). The Community Readiness Model is an innovative method for assessing the resources, capacity and attitudes of a community's readiness to develop and implement programming related to an issue. The CRM has its origins in addressing community alcohol and drug abuse prevention, but the CRM has the potential to assess readiness for a range of issues from health and nutrition to environment and social concerns (Plested et al., 1998).

The CRM assesses specific characteristics related to different levels of problem awareness and readiness for change using key informant interviews with questions on six different dimensions (Table 1). Each of the six dimensions is evaluated by nine stages of readiness (Table 2). Each stage is distinct and describes particular characteristics that are likely to be present if the community is at that stage of readiness. The staging process can help a community identify how it might progress in a logical manner. Identifying a community's stage of readiness can facilitate strategy development and can shape the direction of the intervention (Jumper-Thurman, Edwards, Plested & Oetting, 2003).

On an individual level, efforts to persuade a person to adopt improved health practices may fall short if that person is unready or unmotivated to enact the suggested behaviors. If and when persons do manage to adopt new and improved health practices, the efficacy of their behavior change can be undermined by their exposure to community or societal influences (Stokols, 1996). The model defines the developmental stages that have to be worked through in order to move the community toward implementing and maintaining efforts to reduce the problem. It provides specific guidelines at each stage for the type and intensity level of strategies that may lead to movement to the next stage and offers direction to the community on how to achieve the necessary community involvement to create a vision, which can lead to change. The guidelines are stated broadly in order to allow specific cultural values and beliefs to be taken into account and to mobilize the use of local assets and resources. The guidelines include development of an understanding of local barriers and obstacles to progress and, in fact, embrace those barriers as part of the nature of the community (Jumper-Thurman et al., 2003).

The CRM has been used to assess a wide variety of issues that affect communities. These issues include assessments of communities for selection into intervention and evaluation studies on obesity and breast health (Sliwa et al., 2011; Borrayo, 2007; Jarpe-Ratner et al., 2013), sexual violence (Banyard, Plante & Moynihan, 2004) and policy development (York & Hahn, 2007), to name a few. Findholt (2007) utilized the CRM to indicate childhood obesity prevention in a rural county in Oregon. Findholt's purpose was to determine the county's stage of readiness to prevent childhood obesity and to identify community members with expertise or interest in children's nutrition and/or physical activity who were willing to serve on a prevention coalition. Through her work,

Findholt also set out to engage community members to develop strategies and gather data on the community's strengths and barriers that would either facilitate or hinder the development of an obesity prevention program. Likewise Freedman et al. (2011) extended existing CRM research to identify indicators of preparedness among community health centers for establishing onsite farmers' markets at community health centers. It was their secondary analysis of contextual data combined with the in-depth stakeholder interviews that revealed five themes related to readiness. Sliwa et al. (2011) used the CRM as a primary criterion to evaluate communities for a specific obesity prevention intervention they developed. They determined that the intervention would only sustain in communities who had already acknowledged a need for an obesity intervention and had invested some of their own resources into the cause (Sliwa et al., 2011).

While the CRM addresses an assessment metric, few if any other community food assessments address readiness for change at the community level. Beebe, Harrison, Sharma and Hedger (2001) argue that the model has design limitations. The first is that key informants determine readiness. Any one key informant may represent the perspectives of a vocal minority group or cause rather than the community at large. Beebe et al. (2001) contest that four face-to-face telephone interviews is time consuming and expensive rendering it cost prohibitive for most local prevention efforts. In addition, the Beebe et al. (2001) indicated that there was no attempt to establish external validity of the instrument. In other words, there was no attempt to determine whether the instrument actually measured a community's readiness for change. Mayer (2008) also highlighted a few limitations to the CRM. First, the papers by Findholt (2007) and Freedman et al. (2011) make the assumption that it is the community's responsibility to prevent disease

or sustain the implementation of the farmers' markets. Secondly, the question has to be asked, do all communities fit into the nine-stage intervention framework?

**Adding a Theoretical Lens: Social Ecological Model.** Assessing a community's capacity for change is inherently a complex, multidimensional process. For these reasons any tool developed to assess readiness must be capable of determining readiness based on all levels of community intervention. The socio ecological model offers a framework from which to develop and/or evaluate such a tool as well as serve as a lens for analysis and development of strategies to move readiness for change to the next level. Ecological means multi-level and refers to the study of the relationships between organisms and their environments (Stokols, 1996). Therefore, the socio ecological model serves as an approach to a wide array of health promotion interventions, from improving fruit and vegetable intake for African Americans to promoting healthy eating in schools (Robinson, 2008; Townsend & Foster, 2011). The social ecological model finds its roots in systems theory and health education (Winch, 2012).

Social ecological theory provides a framework for describing individual change within the context of social change and can provide a conceptual framework that can assist in the planning and evaluation of multiple-component programs. Health promotion has shifted in recent years from person-focused interventions to environmentally based and community-oriented health interventions (Stokols, 1996). The use of this model in this study stems from the realization that most public health challenges, food security included, are too complex to be understood adequately from a single level of analysis (Stokols, 1996).



The social ecological theory encompasses five nested levels that affect behavior: intrapersonal, interpersonal, organizational, community and societal structure/public policy. Individual behaviors shape and are shaped by the social environment. According to Stokols, it was determined that if the outer spheres of influence – public policy, community and organizational – are not present as influences on the health issues or intervention, the inner spheres – intrapersonal and interpersonal – are unsupported and likely not sustainable for sought behavior change (1996). Proposing evaluation or intervention strategies geared toward several different groups of people that have multi-levels or components might lead to more efficient behavior change (CDC, 2013; Stokols, 1996).

Due to the nested nature of the five analytical levels of social ecological theory, most studies that utilize the framework incorporate at least two or more levels (Stokols, 1996; CDC, 2013; Robinson, 2008). This permits researchers to examine both individual and aggregate manifestations of health problems and impacts of community interventions. This also helps to avoid blind spots that result from health promotion research or interventions that focus solely on either behavioral or environmental factors. The application of this theory is diverse and adaptable to many research needs and disciplines. However, there is one major limitation. Ecological interventions require the integration of knowledge from several different disciplines and close coordination among persons and groups from various sectors of the community. This leads to multi-level, multi-method projects that take place over a long period of time (Stokols, 1996).

## CHAPTER 3: JOURNAL ARTICLE

### USING THE COMMUNITY READINESS MODEL AS A FRAMEWORK TO UNDERSTAND A COMMUNITY'S PREPAREDNESS TO INCREASE FOOD ACCESS

Kristyn D. Achilich<sup>a</sup>

MS Candidate, Food Systems Graduate Program, University of Vermont

Linda Berlin, PhD<sup>b</sup>

Director, Center for Sustainable Agriculture, University of Vermont

Extension Assistant Professor, Dept. of Nutrition and Food Sciences, University of Vermont

Emily M. Piltch, MPH<sup>c</sup>

PhD Candidate, Agriculture, Food & Environment Program, Tufts University

#### ABSTRACT

Research indicates that one of the barriers individuals face in increasing consumption of healthy foods is access to high quality food stores. This barrier is best studied through the practice of community food security. Limited research exists for both practice and theory associated with community food security. A tool to assess the needs and readiness of the communities with respect to their access to healthy food sources could be advantageous. This research simultaneously evaluated the usefulness of the tool while assessing community readiness in six of eight project communities.

In this study, we used a community level behavior change model, the Community Readiness Model (CRM), to develop an assessment of readiness of six communities across the Northeast to increase their access to healthy foods. We followed the CRM protocol for identifying participants. Twenty-four individuals from six locations participated. The interviews were conducted using the semi-structured interview guide provided in the CRM protocol. Interviews were conducted by telephone, transcribed and scored by two researchers in accordance with the CRM protocol.

The mean overall readiness score for the six communities was 4.9 (SD 1.0) on the 9-point scale. The overall readiness scores indicated that the three urban communities scored higher (mean 5.7, SD 0.6) than the three rural communities (mean 4.1, SD 0.7). While it was useful to have scores on a continuum to quickly assess the communities of study, we found the qualitative data obtained from the interview process imperative to contextualizing the scores and designing interventions for the communities to increase their food security in the future.

The application of the Community Readiness Model to assessing readiness for change in food access at the community level revealed that activities and social issues constrained to intra and interpersonal levels of community development hold value in understanding community food security. This is not new information in the field of community food security; it simply stresses the importance of including readiness assessments in the community food security assessment toolbox. We conclude with one suggestion for how the Community Readiness Model can be incorporated into the Community Food Security Tool Kit developed by the U.S. Department of Agriculture (USDA) Economic Research Service (ERS).

#### KEYWORDS

Food systems, food access, food security, community development, sustainable communities, assets-based assessments, community readiness model, readiness for change, community food security tool kit

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<sup>a</sup> [Kristyn.Achilich@uvm.edu](mailto:Kristyn.Achilich@uvm.edu); <sup>b</sup> corresponding author: 23 Mansfield Ave., Burlington, VT 05401, Phone (802) 656-0669, [Linda.Berlin@uvm.edu](mailto:Linda.Berlin@uvm.edu); <sup>c</sup> [Emily.Piltch@tufts.edu](mailto:Emily.Piltch@tufts.edu)

## **Introduction**

Food is defined by our societal and cultural histories. It nourishes us in order to sustain life but not everyone has access to truly nourishing foods. For many, their food environment can shape their health. Community and regional planning can affect the quality of food environments. However, little research exists that examines which community-level characteristics are associated with a community's capacity to respond to food access and food insecurity. "Food desert" is a concept used to measure food access at the community level. A food desert is an area where people have limited access to a variety of healthy and affordable food. Dutko, Ver Ploeg, and Farrigan (2012) found that areas with higher levels of poverty, regardless of rural or urban designation, are more likely to be food deserts. Additionally, in all but very dense urban areas, the higher the percentage of minority populations the more likely the area is to be a food desert. Blanchard and Lyson (2009) conclude that individuals who live in food deserts are less likely to consume fruits and vegetables than people who live in areas with greater access to food. One barrier in securing healthy food includes a dearth of high quality food stores and an excess of lower quality ones (Kaiser, 2008). The Blanchard and Lyson study shows that community-level factors, such as access to food, influence the quality of one's diet (2009). Therefore, research is needed to understand how communities respond to the problem of food insecurity and limited food access. Furthermore, understanding the factors that increase a community's capacity to respond to food insecurity will better inform sustainable food system change at the regional level.

Community food systems (CFS) inherently encompass an individual's food environment of which food deserts are a part. Community food systems can include an

evaluation of food security at the community level. Community food security is “a situation in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self-reliance and social justice (Hamm & Bellows, 2003, p. 37).” Most definitions of community food security are a result of the evolution of hunger work and often contain seven components: food access, food safety, nutrition, sustainable agriculture (food production), local food systems (community self-reliance), culturally acceptable food and social justice (Lutz, Swisher & Brennan, 2010; Anderson & Cook, 1999).

Lutz et al. (2010) explain that the concept of community food security is unique in its intention to examine the complex relationships among crucial characteristics and components of food systems. This holistic approach involves issues from community members’ ability to obtain food, to the social welfare of the workers and participants in the food system. Since community food security spans such a vast set of characteristics and an innumerable combination of those characteristics, Anderson and Cook (1999) posit that CFS theory would define the nature of food secure communities, describe the underlying political philosophy, offer a clear definition of community food security, and outline measures of community food security to both inform the practice and guide policy.

McCullum, Pelletier, Barr and Wilkins (2002) suggest that community food security, while still in need of theory, is inherently an analytical framework that includes three basic components: process, projects, and policy. The process is characterized by building participation through community planning and collaboration. They suggest that this can happen by defining the community to be served or studied, conducting a community-based needs assessment, connecting with community groups and

organizations and developing strategies to support a long-term strategic plan with the end goals of community entrepreneurship. Project community members and stakeholders can work together to include community gardens, farmers' markets and other enterprise developments to increase local production and marketing of foods. Lastly, policies are assessed to determine if they act as barriers or enablers to community food security projects (McCullum et al., 2002).

A significant limitation cited in community food security literature is deciphering what 'community' means. There is no common definition. Lutz et al., (2010) offer that communities can be defined by social characteristics such as the following: shared values or culture; psychological

characteristics such as a sense of belonging or commitment to care for one another; and geographic characteristics such as city, town, county, state or regional boundaries. This study contributes to the work of Goetz et al. (2010) in their

**Box 1. Assessing six levels of Community Food Security\***

1. The community's socioeconomic and demographic characteristics
2. The community's food resources
3. Household food security within the community
4. Food resource accessibility
5. Food availability and affordability
6. And, community food production resources.

Note: This list was developed from the tools defined in the Community Food Security Assessment Toolkit (Cohen, Andrews, and Kantor, 2002).

USDA-National Institute of Food and Agriculture (NIFA) funded (Grant No. 2011-68004-30057) projected titled *Enhancing the Food Security of Underserved Populations in the Northeast Through Sustainable Regional Food Systems Development*. As such, geographic boundaries were the primary determinant of community.

To date, community food assessments are most widely used to assess the food

environment at the community level. The rise of community food security is evidenced by the work sponsored at the federal level to define community food security and develop tools that support community-level stakeholders in their attempts to develop strategic planning strategies for increased food security for all members of the community (Cohen, Andrews & Kantor, 2002). Pothukuchi (2004) argues that the first step in planning for community food security is a community food assessment. He further contends that community food assessments should be part of the community planner's toolbox because community food assessments can improve community food security planning.

Pothukuchi's (2004) work evaluates categories of information from nine community food assessments across the country. These categories can be analyzed with an assets-based methodology and can utilize the community capital framework proposed by Crowe and Smith (2012) and Flora, Flora and Fey (2004). The Community Food Security Tool Kit compiled by the USDA and ERS (2002) offers a very comprehensive package of assessment methods. . It includes tools to assess food access at six levels (see Box 1), but still does not address community attitudes, or knowledge of food access and security. This study adapted an existing tool designed to assess a community's readiness for change, the Community Readiness Model.

This article is organized in five main sections. The first explores the connections between community food security, building community capacity for change, and the role a readiness assessment plays in understanding community capacity. The second describes the process for developing a readiness assessment instrument and implementing it in six communities across the Northeast. The use of a case study methodology allows us to deeply explore context-dependent meanings of community food security from the

community's point of view through the lens of one tool. The third section explains the community readiness scores for these six communities. The fourth section discusses how applying the Community Readiness Model to food access expanded our understanding of community food access. In addition, this section describes the changes we propose for the tool to continue to be used as part of a community food security assessment. The fifth section discusses how the tool becomes even more effective as part of a community food security tool kit.

## **Background**

### **Systems Thinking needed for Food System Change and Health Promotion.**

There is a real need for multi-level systemic research and strategies for food system change (Best, 2011; Born, 2013; Clancy, 2004; Clancy, 2013; Hamm, 2009). Health promotion strategies must encompass individual dimensions like the physical, emotional, social, spiritual and intellectual health as well as contextual dimensions like community culture, societal values, structures and policy (O'Donnell, 2009). However, a shared understanding of the multilevel influences and the value of multilevel interventions remains undefined (Best, 2011). By the definition provided above, health promotion will inherently include the community in which individuals reside. Community health readily transfers into the public health arena when we consider the impact of food on that community's health. Effectively a complex problem, community health promotion, which often calls for behavior change, requires intervention at many different scales of the system. The engagement of individual agents and organizations across those scales ranging from home, school and work environments to communities, regions and entire countries (Finegood, 2011) is necessary in initiating and sustaining these changes.

**Food Systems, City Planners, Sustainable Communities.** One context in which community development and food systems professionals can come together is through city, county and regional planning to create sustainable communities. Since the 1900's planners have played a role in shaping food environments, but the practice was neglected for decades (Raja, Born, & Kozlowski, 2008). Pothukuchi and Kaufman (2000) revitalized the practice when they wondered why among essential provisions to sustain life – water, shelter, air and food – planners had ignored food. Planners may ask how food systems is their “turf,” but Clancy (2004) calls planners to make connections to the food system to identify the interconnection between food and other planning concerns like land development. Most city planners consider food and agriculture to be a rural issue, but county planners are often responsible for urban, suburban and rural areas. While food has not been perceived as a public good like air and water, food safety and access have been acknowledged as public goods. Food safety is highly regulated through state and national governments. Access was first addressed by the government during the Great Depression and continues to be addressed today through programs like WIC, SNAP and school lunch (Clancy, 2004). Food security remains unaddressed as a public good. It can be thought of as the ability to produce, reliably access, and effectively use food appropriate to one's culture (Clancy, 2004; FAO, 1996). Food contributes significantly to the reality and perception of a “good life.” Increasing interconnectedness between urban and rural planning and the food system could bring significant social and economic benefits (Pothukuchi, 2004).

**Assets-Based Assessment of Community Capital.** Kretzmann and McKnight defined assets as the “gifts, skills and capacities” of individuals, associations and



institutions” within a community (1993, p. 25). A focus on community *assets* rather than *needs* represents a shift in how community development researchers and practitioners approach their work. If a community begins by assessing its needs, it often jumps immediately to problem solving rather than identifying its goals and strengths (Green & Haines, 2012). In addition, asset building has some interesting similarities to social capital theory where social capital becomes the basis for building other community assets such as human and financial capital (Crowe & Smith, 2012). Asset mapping is the identification of economic development opportunities through the mapping of available skills and work experience (Flora, Flora & Fey, 2004; Green & Haines, 2012). One of the most valuable assets is a community’s capital, which can be measured in seven forms – physical, human, social, financial, environmental, political and cultural. Often, “capital” is defined as wealth that is used to create more wealth.

A key element of conceptualizing food security theory at the community level is knowledge of indicators or best measures that are positively associated with the likelihood of a community responding to the problem of limited food access. Crowe and Smith (2012) define this as community capital. Furthermore, they posit that assessing a community’s level of social, cultural and human capital can be an effective way to measure a community’s capacity for change.

***Social Capital.*** Crowe and Smith (2012) stress the importance of utilizing bridging social capital – i.e. capital that connects across different groups in the community as well as to other communities. The interconnectedness of bridging capital is beneficial when looking to increase a community’s food access versus the historical focus on household or individual food access. In addition, civic-ness can also aid in increasing

food access where residents of communities located in food deserts with a high level of civic structure are significantly less likely to be food insecure (Morton, Bitto, Oakland & Sand 2005). Additionally, Martin, Rogers, Cook and Joseph (2004) found that households in Connecticut of similar limited financial or food resources were less likely to experience hunger if the household had higher levels of social capital.

***Cultural Capital.*** Cultural capital is often described as the least tangible of a community's capitals and found in three states: embodied, institutionalized, and objectified (Bourdieu, 1986). These states of cultural capital inform how we view the world, what we take for granted, what we value and what things we think we can change. Communities that are able to implement a variety of recreational and social opportunities may have the values and beliefs conducive for other types of community betterment, such as increasing healthy food access (Crowe & Smith, 2012).

***Human Capital.*** Human capital includes personal assets like health, formal education, skills, intelligence, leadership and talents that strengthen one's ability to earn a living and provide for one's community, family and self-improvement (Crowe & Smith, 2012). Risk factors like lower levels of educational attainment, poor health, economic hardship and lack of food preparation skills are most often associated with household level food insecurity. All of which contribute to an understanding of a community's human capital (Alaimo, 2005).

**Community Capital Influences Community Food Security.** To date, there is no specific theory that defines community food security and how to go about measuring it. Anderson and Cook (1999) focus working within the larger community instead of the traditional focus on individuals or households. The concept of community food security

can help identify and understand barriers to food security at several levels of analysis and help policy-makers and practitioners improve food security in a given area (Anderson and Cook, 1999). Historically, the unit of analysis for food access was seen as individual or household level. In the U.S., food security is traditionally assessed by individual and household food intake surveys or indirectly through proxies such as poverty, real wage rates relative to food prices, employment and demand on the emergency food supply system (FAO, 1996). Investigating food security at the community level has a conceptual richness and deals with a scale of analysis that is still under investigated in food security work. In addition, it builds from the methodological and theoretical strength found in individual and household level work.

**The Community Readiness Model.** The Community Readiness Model (CRM) is an innovative method for assessing the resources, capacity and attitudes of a community's readiness to develop and implement programming related to an issue. The CRM has its origins in addressing community alcohol and drug abuse prevention, but it also has the potential to assess readiness for a range of issues from health and nutrition to environment and social concerns (Plested et al., 1998).

The CRM assesses specific characteristics related to different levels of problem awareness and readiness for change using key informant interviews with questions on six different dimensions (Table 1). Each of the six dimensions is evaluated by nine stages of readiness (Table 2). Each stage is distinct and describes particular characteristics that are likely to be present if the community is at that stage of readiness. The value of the CRM is that the staging process can help a community identify how it might make progress in a logical manner. Identifying a community's stage of readiness can facilitate strategy

development and can shape the direction of the intervention (Jumper-Thurman et al., 2003).

The CRM has been used to assess a wide variety of issues that affect communities. These issues include assessments of communities for selection into intervention and evaluation studies on obesity and breast health (Sliwa et al., 2011; Borrayo, 2007; Jarpe-Ratner et al., 2013), sexual violence (Banyard, Plante & Moynihan, 2004) and policy development (York & Hahn, 2007), to name a few. Findholt (2007) utilized the CRM to indicate childhood obesity prevention in a rural county in Oregon. Findholt's purpose was to determine the county's stage of readiness to prevent childhood obesity and to identify community members with expertise or interest in children's nutrition and/or physical activity who were willing to serve on a prevention coalition. Through her work, Findholt also set out to engage community members in developing strategies and to gather data on the community's strengths and barriers that would facilitate or hinder the development of an obesity prevention program. Likewise Freedman et al. (2011) extended existing CRM research to identify indicators of preparedness among community health centers for establishing onsite farmers' markets at community health centers. It was their secondary analysis of contextual data combined with the in-depth stakeholder interviews that revealed five themes related to readiness. Sliwa et al. (2011) used the CRM as a primary criterion to evaluate communities for a specific obesity prevention intervention they developed. They determined that the intervention would only sustain in communities who had already acknowledged a need for an obesity intervention and had invested some of their own resources into the cause (Sliwa et al., 2011).

While the CRM addresses an assessment metric few if any other community food assessments address little work has been done in the area of community readiness assessment outside of the CRM. Beebe, Harrison, Sharma and Hedger (2001) argue that the model has design limitations. The first is that key informants determine readiness. Any one key informant may represent the perspectives of a vocal minority group or cause rather than the community at large. Beebe et al. (2001) contest that four face-to-face telephone interviews is time consuming and expensive rendering it cost prohibitive for most local prevention efforts. In addition, the Beebe et al. (2001) indicated that there was no attempt to establish external validity of the instrument. In other words, there was no attempt to determine whether the instrument actually measured a community's readiness for change. Mayer (2008) also highlighted a few limitations to the CRM. First, the papers by Findholt (2007) and Freedman et al. (2011) make the assumption that it is the community's responsibility to prevent disease or sustain the implementation of the farmers' markets. Secondly, Mayer (2008) suggests that not all communities would fit into the nine-stage readiness framework.

### **Applied Research Methods**

**Discovering the Tool.** Communities, like individuals, often move through stages to address an issue in the community. We examined the literature for models and tools to assess communities with respect to their development of public health related initiatives. This literature search revealed the TriEthnic Center's Community Readiness for Community Change Model. The development of the tool and its current use are largely focused on prevention and social action for change around issues like obesity, heart health, drug use, as well as environmental issues. For this reason, we were interested in

the utility of the tool in gauging the readiness of communities to increase their access to healthy and fresh foods.

The tool consists of a structured interview guide of approximately 36 questions. Twenty of the questions are essential to include in order to employ the scoring procedures. The questions are divided up amongst six dimensions each of which are scored on a nine-point readiness scale. Table 1 summarizes each dimension of the CRM. Table 2 (Appendix A) presents the potential score continuum, stage names, goals for each stage and suggests strategies to move the community forward in its readiness. The interview guide (Table 3, Appendix B) is used to conduct interviews with four to six key respondents in each community. Two researchers employ the accompanying scoring guide to score each dimension in each interview. Scores are then combined to calculate both a mean score for each of the six dimensions, as well as an overall readiness score for the community.

**Tailoring the Interview Guide for Food Access.** We chose to layer the Social Ecological Model upon the CRM to ensure we were capturing a readiness score for each community that accounted for the integrated complexity that is the issue of community food access. We accounted for the highest levels of the Social Ecological Model in the CRM interview guide provided by the Tri-Ethnic Center by labeling the interview questions in the preexisting CRM guide as Societal Structure, Policy & Systems, Community and Institutional/Organizational. In doing so, we discovered there was a lack of questions assessing the policy and institutional/organizational spheres. The CRM also had optional policy questions that we included. In addition we supplemented the interview guide with the following five questions:

1. *Does your community make use of any local, state, or federal policies in your food access efforts, like school lunch, summer lunch, or SNAP processing at farmers' markets?*
2. *Are food access efforts reported on in your community-level media – newspapers, news, online community forums – or on the agendas of your town meetings, planning meetings, etc.? (i.e. community or school garden programming/planning)*
3. *Do any of the church or social groups in your community support any efforts to increase food access? For instance, sponsoring a community garden or cooking classes that use locally sourced or whole foods, food pantries, buying clubs, after-school programs and/or community outreach and awareness of the issue?*
4. *Are you aware of any partnerships among federal or state funding sources or departments (i.e. the health or education departments of local or state government) that have supported efforts at local grocery stores to increase healthy food?*
5. *Are you aware of any groups of people that gather on their own (without assistance from a church, state or local organizing party) to prepare or grow healthy food?*

The CRM naturally focuses less on the individual and interpersonal spheres of influence because it is geared towards assessing the community. We chose to minimize the number questions specifically assessing these spheres.

Similarly, the CRM was evaluated for its ability to assess readiness to increase food access in a manner that also assessed community capital. We found that because the CRM is an assets-based community assessment, it focused largely on human and cultural capital. Each of the six dimensions was labeled with the terms social, cultural, human and community capital when appropriate. The purpose of layering both the SEM and capital onto the CRM was to allow for the development of a continuum of activities that address multiple levels or points of intervention and are developmentally appropriate for the stage of readiness a community displays (CDC, 2009 & 2013). While this study does not address the individual and interpersonal levels of social ecological theory in depth, the USDA Food Security Supplement for the CPS focuses primarily on assessing the household level of food security (Current Population Survey, 2012).

**Testing the Tool.** Once the original CRM was edited to fit our purpose and specific community issue, the tool was piloted with three professionals in Vermont who spanned a variety of geographic areas and occupations. We conducted the interviews by telephone per the CRM protocol. The additional questions considerably lengthened the interview guide. But, pilot interviews indicated that 45 minutes was a sufficient amount of time to conduct the interviews.

In addition, the pilot interviews indicated that it made sense to reorganize the dimensions. The order of the dimensions was changed and questions remained associated with their original dimension. The final order of dimensions for this study was Community Knowledge about the Issue, Community Climate, Community Efforts, Community Knowledge of the Efforts, Resources Related to the Issue and Leadership.

**Identifying Key Respondents.** We received approval in the “exempt” category of the Institutional Review Board at the University of Vermont. Eight site leaders from the USDA-NIFA funded *Enhancing Food Security of Underserved Populations in the Northeast through Sustainable Regional Food Systems* research project were contacted to assist with identification of potential respondents. ‘Site leaders’ refer to individuals within the communities who the researchers work with at each geographic location to engage the community. Six site leaders responded and recommended key respondents in their sites. The sites were chosen in an iterative process as researchers who would also function as location leaders were identified. The project wanted a mix of urban and rural sites, as well as researchers from private and public universities and 1862 and 1890 (historically black) land grant colleges (Clancy, 2014). The six communities extend from northeast Vermont to northwestern New York south to West Virginia including several



major urban centers in the central, Northeast region. Community demographics are included in table 4.

**Table 4.** Community Demographics

	Urban 1	Urban 2	Urban 3	Rural 1	Rural 2	Rural 3
Population <sup>a, b</sup>	large	large	medium	medium	small	small
Ethnicity (%) <sup>c</sup>						
White	30.0	66.0	56.0	95.0	97.0	64.0
African American	64.0	26.0	30.0	2.0	<1.0	22.0
Latino	4.0	2.0	8.0	2.0	1.0	9.0
Other	3.0	6.0	6.0	1.0	1.0	5.0
Income <sup>d</sup>						
Median household (\$)	40,000 – 44,999	35,000 – 39,999	30,000 – 34,999	50,000 – 54,999	35,000 – 39,999	50,000 – 54,999
Below poverty (%) <sup>c</sup>	24.0	23.0	35.0	11.0	16.0	17.0
Education (%) <sup>c</sup>						
Bachelor's +	27.0	36.0	26.0	26.0	15.0	20.0
High School Diploma	80.0	89.0	81.0	90.0	83.0	88.0
Age in Years (%) <sup>c</sup>						
Under 18	22.0	21.0	23.0	21.0	18.0	22.0
65 and over	12.0	14.0	11.0	16.0	22.0	17.0
<i>Note.</i> All data from United States Census Bureau.						
<sup>a</sup> population as of 2010 US Census						
<sup>b</sup> small (10,000 and less), medium (10,001-150,000), large (150,000 -1,000,000)						
<sup>c</sup> rounded to nearest whole number						
<sup>d</sup> from 2009 – 2013						

Each site recommended up to eight individuals, providing an email address and phone number for each person. We emailed each of the 32 individuals providing a brief narrative of the project and to request a time to interview him or her by telephone. Individuals confirmed a one-hour time slot by email as well as their best contact number. We persisted until we had commitments from four respondents from each of six communities in the Northeast, for a total of 24 respondents.

**Conducting Interviews.** One researcher conducted all interviews by telephone. The interviews lasted anywhere from 35 minutes to one hour. The interview guide was used to guide the conversation. Often respondents would answer multiple questions at a time. These answers and the length of the interview determined which other questions were asked. All required questions for scoring per the recommendations of the CRM were asked. Each interview was tape recorded with permission of the respondent and then transcribed. Notes were also taken. The tape player failed with one interview, so notes were used to recall the conversation, and the content was confirmed with the respondent.

**Analysis.** Two researchers evaluated each interview in each community using the anchored scoring guide developed by the TriEthnic Center. The guide offers benchmarks for each of the six dimensions. The researchers employed the anchored scoring guide to evaluate, as objectively as possible, the diverse data provided by each respondent. Scorers then discussed scores for each dimension in each interview. The final scores were recorded in SPSS 21.0.0 and the mean was calculated for each interview. Once the mean was calculated for each interview, the four interviews from each site were used to calculate the mean for the dimension. After the score for each dimension was calculated, the overall readiness score for each community was calculated. The overall readiness scores from the six communities were used to calculate the mean readiness score for the study.

Once the scoring for each community was complete, HyperResearch 3.5.2 was used to qualitatively analyze the transcripts. Transcripts were coded based on what participants' perspectives offered about the topic of food access as seen through the lens

of the CRM. This lens also revealed information about the utility of the tool for the issue of food access and what could be learned about the communities with respect to their existing level of food access. An overview of the study methodology can be found in figure 2 of Appendix A.

## **Results**

**Community Readiness Scores.** The scoring process provided numerical representations of readiness within the communities. These scores exist because of the key respondents' perspectives about the community. What follows is a presentation of the numerical scores and their corresponding stages, but Table 7 represents a quote from a key respondent that exemplifies the overall readiness score for that community.

The mean overall readiness score for the six communities was 4.9 (SD 1.0) on the 9-point scale (see Table 5). This score is firmly rooted in the pre-planning stage of readiness and hints towards the preparation stage of readiness. Scores ranged from 3.7 to 6.2 (Figure 3). The lowest scores (averaged for the six communities) among the six dimensions were those of community climate (mean 4.3, SD 1.2) and knowledge of efforts related to the issue (mean 4.3, SD 0.9). These scores again correspond with the pre-planning stages of readiness. The score for the leadership dimension was the third lowest score and varied the most (mean 4.5, SD 1.8), yet it also corresponded with the pre-planning stage of readiness. The same was true for knowledge of the issue dimension (mean 4.7, SD 1.1). Community efforts and resources related to increasing food access scored the highest (mean 6.3, SD 0.8; mean 5.2, SD 1.3, respectively). These scores correspond with the initiation and preparation stages of readiness. They indicate that communities have active leaders planning efforts with modest community support and

some communities have successfully launched efforts to increase access to healthy food.

All scores are represented in Table 5.

**Table 5.** Community Readiness Scores for Six Northeast Communities

		Community						Dimension Mean
		Urban 1	Urban 2	Urban 3	Rural 1	Rural 2	Rural 3	
<b>Dimensions</b>	Knowledge of Issue	5.6	5.5	4.6	4.8	4.1	3.8	4.7 (SD 1.1)
	Climate	5.6	5.5	4.6	4.2	3.4	2.7	4.3 (SD 1.2)
	Efforts	7.1	6.6	6.4	6.4	5.5	5.9	6.3 (SD 0.8)
	Knowledge of Efforts	4.7	5.0	4.9	4.4	3.4	3.9	4.3 (SD 0.9)
	Resources	7.3	5.9	5.0	4.9	3.9	3.9	5.2 (SD 1.3)
	Leadership	6.7	6.0	4.9	4.6	2.6	2.1	4.5 (SD 1.8)
<b>Overall Readiness Score (Mean 4.9, SD 1.0)</b>		<b>6.2 (SD 1.0)</b>	<b>5.8 (SD 0.5)</b>	<b>5.1 (SD 0.7)</b>	<b>4.9 (SD 0.8)</b>	<b>3.8 (SD 1.0)</b>	<b>3.7 (SD 1.3)</b>	
Urban mean 5.7 (SD 0.6)					Rural mean 4.1 (SD 0.7)			

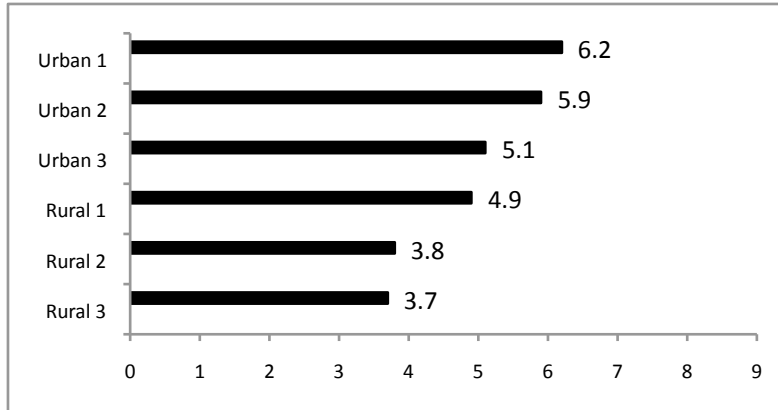
**Table 6.** Infrastructure & Support and Community Knowledge Scores

Community	Infrastructure & Support * (Mean 5.3, SD 1.2)	Community Knowledge ** (Mean 4.5, SD 0.8)
Urban 1	7.0	5.3
Urban 2	6.2	5.5
Urban 3	5.5	4.7
Rural 1	5.3	4.5
Rural 2	4.0	3.6
Rural 3	4.0	3.5

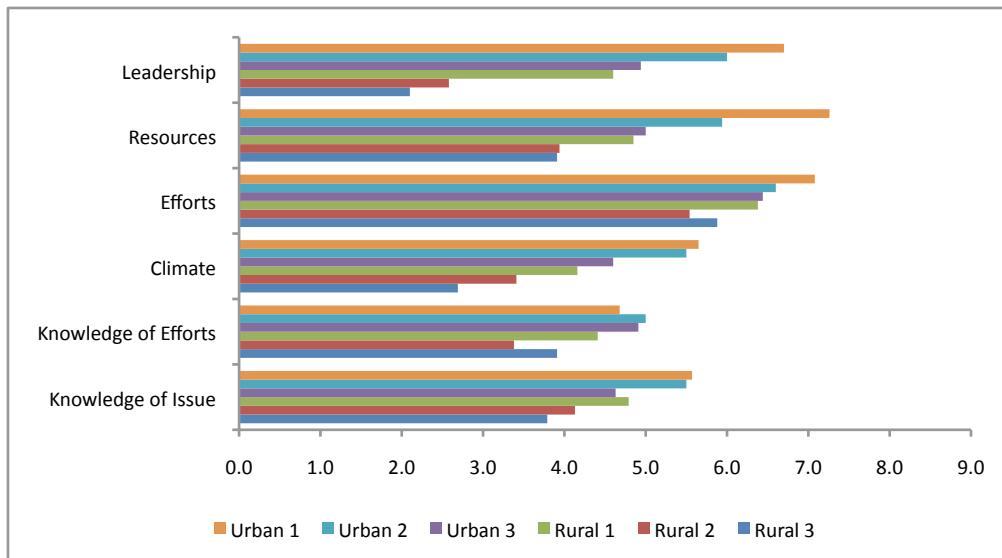
Note:

\* This score is obtained by calculating the mean of the Resource, Leadership and Community Efforts dimension scores for each community.

\*\* This score is obtained by calculating the mean of the Community Knowledge of the Issue, Community Knowledge of the Efforts and the Community Climate dimension scores for each community.



**Figure 3.** Overall readiness scores for each of six Northeast Communities.



**Figure 4.** Mean scores for each dimension and each community.

Figure 3 represents each community's overall readiness scores. The overall readiness scores indicate that the three urban communities scored higher (mean 5.7, SD 0.6) than the three rural communities (mean 4.1, SD 0.7) (see Table 5). In addition, the resource, leadership and efforts dimensions consistently yielded higher scores than the knowledge of the issue, knowledge of the efforts and climate dimensions in all communities (see Figure 4). This finding prompted researchers to create two categories of scores. Calculating the combined mean in each community of the resource, leadership

and efforts dimensions created the Infrastructure and Support category (see Table 6) (category mean 5.3, SD 1.2). The knowledge of the issue, knowledge of the efforts and climate dimensions were used to calculate the Community Knowledge category (category mean 4.5, SD 0.8).

**Table 7.** Key Respondent perspectives that represent the overall readiness score.

Community	Score	Qualifiers from CRM	Key Respondent Perspective
Urban 1	6.2	Justification of efforts; programming underway; provide community specific information	<i>“This is good [innovation and diversity of programming] because [our community] is a city of neighborhoods and each neighborhood is really different from the next, even if their demographics are really similar, they are actually very different. You can’t necessarily do a one size fits all intervention in [our community] because each neighborhood is so different and they want to be taken as different as well.”</i>
Urban 2	5.8	Leaders begin planning; community offers modest support; gather existing information	<i>“Your average person who is not involved in human services, does not think it’s (food access is) a problem. But if you were to ask people who interact with low income individuals on a regular basis, or disadvantaged populations, then it is more of an issue, or if you are working with people who are seeing issues with health and wellness in particular communities, it’s a huge issue.”</i>
Urban 3	5.1		<i>“I found really interesting in this last six months is that I’m on the board of the United Way and we do community health assessments, or not health assessments, I should say community need assessments about every three years and this year the staff did focus groups with teens and seniors and young professionals and general community. And in every single focus group they mentioned nutrition and access to fruits and vegetables and increasing kids’ ability to eat healthy food without any prompting. The United Way is not necessarily known for its health funding per se, but it came up in every focus group.”</i>
Rural 1	4.9	Recognition that something must be done; efforts aren’t detailed; raise awareness with concrete ideas	<i>“It goes back to getting people away from canned, from wanting to shop up and down the aisles, instead of shopping the perimeter. Wanting to get people to the farmer’s market instead of eating out of a bag and that whole education piece of teaching them how to cook, again. And some of those things that they didn’t have the luxury of a grandmother teaching or a mother teaching and for them to pass on to their own children. It’s that education piece. It’s a lot of work.”</i>
Rural 2	3.8	Most community members feel local concern; no immediate motivation to act; raise awareness that community can do something	<i>“I think the challenge is just being in a really rural area. On one hand, there aren’t that many places where we all go to get information. But you know, it’s just hard to reach everyone. I think it is a bit of there’s a lot going on, the area has a lot to offer, but we may or may not tell you about it. That’s true for everything, the best swimming hole, the free ice cream or ice-skating. I think that’s true for all programs and resources that are out there. There’s all the stigma stuff too.”</i>
Rural 3	3.7		<i>“I know the food thing is really well supported. Milford itself is a fairly strong community. There’s lots of people that are very involved in the community and the growth of local businesses and community activities. They do all kinds of family-driven activities and stuff. So I’d say the strength is the fact that the community really is a very strong base just by itself.”</i>

**Interpretation of Community Readiness Scores.** Our goal with this research was to assess the value of the CRM to understanding food access in at the community level. We did this by staging the communities participating in the EFSNE project with regard to their readiness to increase access to fresh, healthy regionally sourced food. The overall readiness scores obtained from the adapted CRM indicated that the communities ranged from the vague awareness to initiation stages of change (scores 3.7 to 6.2). This cluster of scores allows the project team to create a toolbox of strategies that meet the goals for the vague awareness to initiation stages of readiness. Creating strategies for this range of readiness scores ensures that they will be accessible for each of the six communities in this study. There are six communities involved in the project, but given these results, it is likely that the toolbox will contain strategies that meet the needs of the two communities that were unable to participate in this study. The EFSNE Outreach Team will develop a Community Involvement Plan (CIP) for each of the eight communities involved with the EFSNE project. Many of the strategies in the CIP will be tailored to each specific community based on the results of the readiness scores obtained from the CRM.

The score (mean 4.5, SD 0.8) for the Community Knowledge category of dimensions indicates some community members recognize the local need to increase healthy food access and some are addressing it. Furthermore, the stage of preplanning suggests that most community members are aware of the need to increase access, but more concrete ideas can be presented and community leaders can build a stronger investment in the initiatives to increase access. The Infrastructure and Support category of dimensions (mean 5.3, SD 1.2) suggests that media and community education/outreach



organizations are informing their communities about the need to increase food access and how their communities are doing so. It also suggests some leaders and resources have been allocated to specifically support food access initiatives.

Some key respondents conveyed that their communities had grassroots leadership. This leadership ranged from community advocates initiating programming for their neighborhoods in urban areas to local farmers reaching out to small, independent grocery stores to sell their goods because their farm was too far off the path for community members to access and they do not process SNAP benefits. But, there remains a need for more neighborhood/community members to become involved in outreach efforts. Most recognized food access programs were the federally funded means-tested and emergency food programs, e.g. SNAP, WIC and food banks. Most key respondents indicated that the majority of community members in lower income brackets were accessing federal and emergency food programs. In addition, most community members identified that those with incomes just above the qualifying bracket (often 200% of the Federal Poverty Level) were most in need of food access initiatives. Community members in urban areas stated that the networking of food access agencies was one of the most beneficial resources and those in rural areas stated their small population and access to prime agricultural land were their biggest resources to be leveraged in moving food access initiatives forward.

*“There’s just great community connectedness here. So, you know when initiatives are working well, they are really strongly supported from the community, they’re grassroots. I think that ensures sustainability (Rural Respondent).”*

*“There’s tons of land. I don’t know how willing they (land owners) would be to see it used for food production though. There are both traditional dairy farms and land that has just been hayed, lots of*

*private land. It's very much a working landscape around there. That's the tradition (Rural Respondent)."*

Additionally, the qualitative data gained from the transcripts enhanced the research team's understanding of the communities involved in this research and the larger EFSNE project. For example, the CRM transcripts provided descriptive information about programs, policies, leadership and resources that can be leveraged to plan, implement and sustain strategies developed by the EFSNE Outreach Team to increase food access. Qualitative data also provided information about the challenges and obstacles present in each community. The challenges urban communities face are very different than those rural communities face.

*"A lot of these families have a lot of other things going on and getting food at the corner store that they can carry out is easier than thinking about the need for healthy food. It's more of the instant – what can we get immediately when we're working multiple jobs or it's really dangerous in my neighborhood to go out after dark or I just got home from work or there are drug dealers on the corner, things like that (Urban respondent)."*

*"I just feel, think, because maybe we are in such a rural area, I think it is sometimes a concern just to be able to get the access here. We don't have larger grocery stores, just small grocery stores. So, I guess we don't have that access because of transportation to grocery stores (Rural respondent)."*

Finally, grassroots leaders, community members and those deeply engaged in food work had very different levels of knowledge about food access in their communities.

*"[Community members] know what's available to them and what's not. The deeper nutritional knowledge or food literacy will certainly impact how much they value what's available to them or not. Pure knowledge of what they can get at the corner store and what they can take the bus down the road to the grocery store to get, they have. I doubt many of them know that there is a Food Policy Initiative. They have maybe seen some news reports but it isn't something I hear my neighbors*

*talking about. I just don't get a sense that people have that level of awareness (Urban Respondent)."*

## **Discussion**

**Application to Food Access Shapes CRM for Future Use.** The CRM protocol not only promised to assess readiness for change at the community level, it allowed the research team to do so by phone from Vermont with six locations that span the Northeast. This drastically reduced the time and costs associated with conducting multi-site interviews. While the first edition and accompanying reliability research of the CRM protocol suggest that four to six individuals is an adequate number of interviewees, we suggest that for an issue as broad and diverse as food access the protocol from the second edition be followed where 6 to 12 individuals are suggested (Plested et al., 2006; Stanley, 2014).

The site leaders recommended the four community members selected for the interviews. The research team provided site leaders with examples of positions stakeholders might hold in their communities in the recruitment letter. But site leaders were not required to nominate individuals holding specific positions (i.e. each site was not required to nominate a mayor/town administrator, a food policy administrator, a food bank director, or a farmers' market coordinator). The stakeholders presented by the site leaders were those thought to hold both a comprehensive understanding of their community and the state of food access. Community members may not see their participants in the same light, nor could a sample of four per community provide an exhaustive profile of a community. In addition, requiring that stakeholders hold the same specific positions in communities that span geographic and socio-economic boundaries

might be unrealistic. Anderson and Cook (1999) explained the perspectives of three disciplines. These perspectives need to converge to fully understand community food security.

1. *Community nutritionists and educators* – focus on providing sound, effective nutrition education who often stress the importance of community factors in impeding or promoting food access and the need to include members of the population being served in decision making and planning
2. *Progressive agricultural researchers and grass-roots activists* – focus is on food producers and more environmentally-sound food production practices who expanded their initial concerns about the environmental costs of current food production systems to include the sociopolitical dynamics of control of food production systems, thus illuminating social costs related to food systems including poverty and hunger. Advocates now look for production, distribution and marketing mechanisms that will provide food security for people who are increasingly underserved – examples of these mechanisms include CSAs and farmers' markets that are subsidized for low-income consumers.
3. *Anti-hunger and community development researchers and activists* – focus primarily on seeking more effective ways to reduce hunger and poverty.

We found that for an initial readiness assessment at the community level, having stakeholders that hold a variety of positions across the study's sites was informative.

Following Anderson and Cook's suggestion in follow up community readiness work or in other studies that employ the CRM has merit. However, the data revealed a need for leaders at the grassroots level and that there was often a difference in readiness of those currently involved with food access work and the target populations for the work.

Therefore, we suggest adding community member leaders to that list to better capture their perspectives on community assets, needs, obstacles and strengths.

Since food access is a very broad topic and does not necessarily fit into the preventative intervention studies around issues of drug addiction, public safety, or environmental issues, we determined that the tool needs further development to continue

to be used for food access. First, in following the CRM protocol, we amended the suggested interview questions to include our issue: increased healthy food access. The wording of the questions requires further amendment to clearly state, define and assess food access. Moreover, the anchored scoring guide needs to align better with the interview guide. We found it particularly difficult to score an interview when generalized terms like “only a few” were used (Plested et al., 2006, p. 23). This work was completed in the fall of 2013. In early 2014, a new edition of the CRM was released. The scoring guide in the new edition included additional descriptors in the anchored sections that should help remedy this issue (Stanley, 2014). Finally, we found the second stage, denial/resistance, to offer a label that did not necessarily fit with the issue of increased community food access. The goal of this stage is to raise awareness that the issue exists in a specific community. In this stage, some community members recognize a need to increase access to healthy food, but it is not widely recognized that this is a local concern (Plested et al., 2006). With the issue of food access, we found the term ‘non-exposure’ to be a better fit.

**Community Readiness For Food Access.** Researchers have employed the Community Readiness Model for strategic planning for public health issues including obesity prevention in school and community health settings (Findholt, 2007; Freedman et al., 2011; Sliwa et al., 2011). Others have used the CRM as a pre and post assessment for a community intervention where the CRM score was used to identify communities able to implement an existing intervention model (Slater et al., 2005). To our knowledge this is the first application of the CRM to assess readiness for increased whole, fresh, regionally sourced food access at the community level. Using the scores to develop targeted

strategies to move these specific communities forward in their level of food access is also a novel contribution to applied food security research.

Knowing this and that community food access is too complex to be adequately understood and addressed from single level analyses, we wanted to ensure the CRM integrated multiple levels of assessment for a complex issue. We compared the dimensions and the questions in each dimension of the CRM to the levels included in the Socio-ecological Model (SEM). The levels of influence we used were intra- and inter-personal factors, community and organizational factors and public policies (Stokols, 1996). We did not expect the CRM to assess the intra- or inter-personal levels at all and did not include additional questions to do so. We found the standard questions of the CRM to adequately address the organizational and community levels of influence but we wanted to add questions that more effectively assessed the policy level of influence. The CRM offers four additional policy related questions in the resource dimension. We included these as well as a fifth policy question in the community efforts dimension. These additions contributed to the 40-question guide. Given the length of the interviews, the four policy questions in the resource dimension were often not asked of the respondent. The policy question in the community efforts dimension revealed that most of the respondents were unaware of policies affecting food access efforts in their community. For these reasons, we suggest including a community member specifically involved with policy development and/or outreach in future applications of the CRM for food access and removing other non-essential questions to allow time for the policy questions. Policy is an important level of community change and an important leverage

point for food system change (Hall et al., 2014). Our final version of the interview guide can be found in the Appendix.

Many of our respondents held positions in community education, outreach and community development. Because of their intimate work with their communities, they often reported on a collection of intrapersonal issues when, if addressed, could potentially contribute to an increased level of food access at the community level. Respondents offered that elderly struggle with standing for long periods of time to prepare fresh foods; some community members live in community housing without access to full kitchens; and some community members do not have the knowledge and skills to prepare fresh food.

*“There’s a large aging population in [our community]. I feel like the whole access to fresh fruits and vegetables is a concern and I think it should be accessible. But, I feel like the older population will not buy a ton of fresh food because they just don’t cook. I think they just eat less as they get older. They don’t want to cook a big meal and a lot of them can’t stand that long or they don’t have the fine motor skills for chopping and other prep work (Rural Respondent, personal communication, October 7, 2014).”*

In addition, key respondents cited that individuals just above the Federal Poverty Level were most in need of services. This speaks to recent works by public policy researchers (Prenovost and Youngblood, 2010) seeking to define the “cliff effect” to design policies that might mitigate a decline in household resources including access to federal food access initiatives like WIC and SNAP. For these reasons, we recommend communities wanting to use the CRM to also consider documenting the individual level food access challenges through use of a tool like the USDA Food Security Supplement (Current Population Survey, 2012).

**Community Readiness and Food Systems.** The EFSNE project is a multi-year, multi-institution, regionally scaled project that conducts research on the production, distribution and consumption sectors of the food supply chain. The main goal of the work is to increase access to whole, fresh, regionally sourced foods. Researchers in community development, public health, economics, nutrition and agronomy work collaboratively with local community leaders. This structure allows the process of research to include and build investment, engagement and education of the community members living and working in the study communities. Including a readiness assessment in this work is crucial to understanding “on the ground” operations and the CRM provided a streamlined framework for reporting back to the community.

The application of the CRM to the EFSNE project allows the graduate students on this research team to access the expertise of researchers across disciplines that students may not have access to in their own work. In addition, builds engagement of the community in the process, research findings and education of the issue and includes input of community culture and resources from a variety of stakeholders. The work in the food system is dynamic and diverse and often incorporates community-building capacity in its state outcomes (Foster-Fishman, Cantillon, Pierce & Van Egren, 2007). The CRM is a tool that allows food system change agents to create initiatives that are sustainable for the community and hopefully the future of food and agriculture.

Most notably, Anderson and Cook (1999) identified a need for a theoretical framework for community food security in order to guide effective policy and action. We reaffirmed that multiple levels of influence contribute to understanding community food security in the process of applying the CRM to community food access. As such, to



adequately assess a community's food security tools that assess the community's socioeconomic and demographic characteristics, food resources, household food security of those living in the community, accessibility, availability and affordability of food and food production resources (Cohen et al., 2002) are necessary. Further, we suggest the CRM be added to this list in order to understand the community attitudes and beliefs around food and changing the food environment. The USDA Community Food Security Tool Kit has previously assembled many of these resources. With continued work, the CRM could be a valid addition. And, we suggest that tools already incorporated in the Kit be evaluated their ability to assess a community's assets rather than their needs.

The USDA Community Food Security Tool Kit was intended for use by practitioners on the ground. Food security coalitions often consist of policy makers, planners, community health and nutritionist making them worthy stewards to implement this assessment. In addition, community planners have the knowledge and skills to digest the findings from the asset-based assessments. They can organize the findings into a community capital framework so that capital can be reinvested into the community for sustained change (Flora, Flora & Fey, 2004; Emery, Fey & Flora, 2006). The findings from the CRM assessment guide professionals to create strategies that meet the community's readiness and leverage their assets. The state of a community's food security is further enhanced when the strategies are categorized in the three-stage continuum proposed by McCullum, Desjardins, Kraak, Ladipo and Costello (2005). Our suggestion is that strategies meeting community readiness for change at levels one through four with no awareness to preplanning, fit under the initial stage of food system change described by McCullum et al. (2005). In this stage, strategies create small but

significant changes to existing food systems. Communities that indicated readiness scores that correspond to the stages of preparation through stabilization, exhibit traits of a community food system in transition. In this phase, strategies focus on connecting social and financial capital to shift food distribution activities from private (e.g. food banks) to public spaces (e.g. CSAs, farmers markets, store shelf's) and promote economic renewal. The final phase of community food system change is food system design for sustainability. This phase incorporates strategies from the confirmation/expansion and high level of community ownership stages of readiness. This phase involves advocacy and public policies that integrate policy from multiple fields like education, labor, economic development agriculture, social welfare and health (McCullum et al., 2005).

### **Limitations**

This is the first known application of the Community Readiness Model to food access across communities so diverse in their geographies, population size and demographics. The use of the tool for this research revealed a few suggestions for future work. In terms of data analysis and reporting, the tool has some limitations, especially when applied to communities that span a rural-urban continuum.

For instance, to improve data collection across communities, we could direct site leaders to recommend a set of respondents for each community with specific job positions (e.g., one elected official, one food bank director, one food policy representative and one community liaison). While we were not this explicit in our selection process for the key informants, most of our key informants held positions in nutrition education, charitable food, non-profit outreach, town administration, and as volunteers in the community. Furthermore, our research was developed and implemented

in late 2012 and was based on the first edition of the *Community Readiness for Change Handbook* (Plested, Edwards & Jumper-Thurman, 2006). The first edition recommended four to six respondents per community. Given the breadth of this study, four respondents from each community were considered acceptable. The second edition of the Handbook was released in early 2014 and suggests six to eight respondents per community. If and when such a study is repeated in the future in each of the communities, the site leaders should recommend this increased number of respondents. With a total of six to eight voices representing specific sectors and positions in each community, the data collected through the interview process is likely to be more robust in reflecting a community's views, culture and understanding.

In addition, the Community Readiness Model assesses six dimensions. Three of these (Resources, Leadership, and Community Efforts), seek to capture what capital the community already has devoted to the issue of increasing healthy food access. The caution here is that 50% of the community's "overall readiness score" is dependent on the scores from these three dimensions. However, because urban communities, by definition, are starting with more resources, infrastructure and leadership capacity, the 50% weighting of these three dimensions inevitably results in higher scores across the board for these dimensions in urban communities compared to those in rural communities. The addition of questions that are tailored for the types of resources found in rural communities could be useful. Acres of farm land, acres of land that could be used as farm land, percentage and age range of active farmers, number of farm stands, and community interest in supporting a farmers market are all examples of rural capital that could be assessed by the CRM.

The scoring procedure for this study could be more robust in the future. While there were two other researchers informing the study, one of which aided in the scoring protocol. The further amendment of the interview guide to specifically address food access should involve a team of developers. One person was sufficient in conducting the interviews and ensured consistency between interviews. However, if two researchers who did not conduct the interviews scored the interviews, the validity of the scores would strengthen. Lastly, as we hope we have conveyed in this work, the CRM process uncovers a large breadth of information about communities and their readiness for change. Assembling a team of researchers, planners, community members and food/agriculture organizations would deepen the analysis and strategy development.

As a final point, since this research was carried out across six communities and the analysis produced one score for each community, there could be a tendency to judge communities based on their scores. Please note that the tool was not developed to judge communities in their ongoing efforts. The tool was used in this study for comparative analysis of a broad issue across a diverse set of communities that span the rural/urban continuum. It is our hope that these individual and collective results allow the EFSNE project team to create strategies that best suit each community in increasing their access to fresh, healthy and regionally sourced foods.

### **Future Work within the EFSNE Project**

The EFSNE project team will use the community readiness scores determined by this study to create strategies to move the communities forward in their readiness for food access change. Once these strategies are implemented, the CRM could be implemented as a post assessment. If project team members continue to increase the involvement of

community members in the CRM process, engagement in the issue of food access could continue to increase and community members can employ an abbreviated version of the CRM to continually assess their progress, set new goals or create new strategies.

Furthermore, the EFSNE team can use the CRM to assess the final two communities involved with the project. Finally, the team can compile a list of existing food access initiatives informants mentioned in their interviews. Some are innovative and worth disseminating. For example, a food bank has a “restrictive food donation policy” that provides guidelines on nutrient quality of accepted foods. In addition, there is a neighborhood advocate program where a member of an urban community joins food policy councils and collaborates with food, nutrition, and agricultural outreach organizations to build engagement in their communities. In one community, a multi-foundation committee formed streamlining food systems initiatives. And, a Food Abundance Index was created in Pennsylvania (“Food Abundance Index Training,” 2015).

### **Future Research**

The data from this research has great potential to serve the researchers in many capacities and there are opportunities for future research. To begin with, statistical analysis could be run on the scores to establish variance and reliability statistics. Secondly, when asked if community members were aware of data about food access for their communities, most informants indicated no such information was available or its reliability was uncertain or simply was not pertinent to their scale. This calls for better housing and increased accessibility for food systems data. While we found a utility to revealing the stages of readiness for our communities, we think future work to validate

our findings and strengthen the CRM's application to food access would complement this work. Such a study might visit a subset of our communities to verify and expand upon the stage of readiness we determined for the community as well as its strengths, weaknesses and obstacles to increase its food access. Not only would this contribute to the validity of our work, it would further engage the communities in the process of change. A document review could also confirm findings and might not require travel to the study communities. In addition, including professionals from the fields of community development, city, county, regional planning and community nutrition in future work will serve the community food security work well.

## **Conclusions**

The Community Readiness Model shows promise as a useful tool to understand the complexities of communities and their readiness to increase food access. Future work includes synthesizing the CRM findings in such a way community members can access the information. Community forums should be held to share the information and solicit feedback on scores and strategies to move forward. The forum will likely also expand researchers' knowledge of the community culture and create a valid list of community capital dedicated and available for the issue of food access. As we heard from the CRM interviews, engaging and coaching a community liaison to conduct this process will likely increase the engagement of the larger community and sustain any work to move food access forward. The CRM holds potential for tool planners to assess current regional activities and gauge readiness for new initiatives to create sustainable regional food systems.

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## **CHAPTER 4: CONCLUSIONS**

### **Contributions to Food Systems Work**

A primary contribution of this study to the larger body of food systems scholarship is the development of a methodology to comprehensively assess and affect food systems change at the community level. At its base, the community readiness model is a tool to assess readiness for behavior change at the community level. In our work, we used the community capital framework coupled with the socio-ecological lens to identify and inform a tool that could determine a community's readiness for change by assessing its assets. Additionally, these lenses hold potential to develop a comprehensive toolkit for assessing community food security, as well as propose a theoretical framework from which to evaluate other community food security initiatives, assessments and research. What is the utility of incorporating the Community Readiness Model into community food assessment strategies for a community, planning commission or research team? We believe the answer is rooted in the desire for sustainable and lasting changes made to community food systems.

The CRM helps to identify the issue and a community's readiness to attend to the issue. The CRM and community capitals approach hold potential to complement each other in a comprehensive community food security assessment. Together, they hold potential to assess readiness based on community's assets and categorizing those assets into the seven capitals of the community capital framework effectively mapping the community's assets. Community capitals are only useful if they are reinvested into the community (Emery, Fey, & Flora, 2006).

## **A Proposed Framework for Community Food Security Planning**

The Community Readiness Model adapted for food access most closely resembles a community food assessment. Pothukuchi (2004) reviewed nine community food assessments (CFAs) across the nation. She argued that CFAs are a tool urban planners can leverage to enhance community food security. Planners do appear to be an integral part in assessing, planning and implementing food systems change at the community level. However, we posit that the Community Readiness Model is a fundamental addition to the community food assessment toolkit. It moves one step beyond the categorization of resources and proposed strategies found in most community food assessments. The CRM offers six dimensions from which to assess assets and applies a scoring procedure to determine a community's readiness for change. A number of steps could be useful in developing a comprehensive community food security assessment.

1. Identification of key respondents for an assessment of community readiness by determining leaders that hold knowledge of the seven community capitals – financial, build, political, social, human, cultural and natural. It is worth noting, the second edition of Community Readiness Model (Stanley, 2014) recommends six to twelve key respondents.
2. Conduct a community readiness assessment using the Community Readiness Model. This provides baseline understanding of where the community is with regard to their readiness for change. This ensures researchers are aware of a community's readiness for change and proposed strategies are sustainable.
3. Conduct an in-depth community food assessment. The process of developing a community readiness score highlights some resources, programs, policies and leadership pertaining to community food systems. The information from the CRM is a starting point, but conducting an in-depth CFA can considerably expand upon the information gleaned in the CRM process.
4. Utilize an assets-mapping process like Appreciative Inquiry (Emery, Fey, & Flora, 2006) to develop a community capital framework for community food security. An assets-based approach helps communities visualize resources that they may not have seen before (Emery, Fey, & Flora, 2006).

5. Develop strategies based on the stage of readiness and the assets of the community that reinvests and expands existing community capital. The socio-ecological model can be used to tailor strategies to address the continuum of factors that affect behavioral change from the intrapersonal to the environmental.
6. Implement the proposed strategies continuing to engage and support the community as it moves through the process of change.
7. Conduct another community readiness assessment to gauge the success of the community in the change process.
8. Finally, we suggest that community planners orchestrate this process as they possess knowledge of the community's infrastructure, strategic economic planning, and community concerns.

### **Future Research**

Our work represents, to the best of our knowledge, a new application of the Community Readiness Model to food access. For this reason, future research should first focus on validating the results of our findings. In particular, the readiness scores we determined for each community should be validated with the communities. We suggest a community forum to share the findings for each community with their members and allow an opportunity for reflection and clarification. This process is likely to engage community citizens both in the process and the issue of increased food access.

Our second suggestion for future research involves the framework we proposed above. The framework is a manifestation of this study housed under a food systems umbrella. This systems lens requires that we consider this work's contribution to the larger body of literature for food system theory, practice and change. As such, we proposed the framework above, but its efficacy needs to be tested. Clancy (2004) called for county, regional and city planners to work together to create regional food systems.

Increasing interconnectedness between urban and rural planning and the food system poses significant social and economic benefits. For these reasons, we think planners are best skilled to orchestrate the process, synthesize the results, and disseminate the findings.

Finally, this research as well as the framework for community food security we proposed above produces vast quantities of data that describe and explain community food systems. We found several significant programs and resources in the six communities involved in our study. Some are worth disseminating to those looking to affect food systems change. However, there is currently no housing for food systems knowledge. The six dimensions of the community readiness model or the seven capitals of the community capital model could be potential frameworks to develop a system for collecting and organizing the information.

### **Concluding Thoughts**

To our knowledge, this is a seminal study in the field of food system scholarship as it seeks to stage communities based on their readiness for change in food access as well as highlight its assets. Based on a well-known community economic development model of community capital, these assets can then be mapped for reinvestment in the community to effect and sustain change in community food systems.

Revealing the stage of readiness for increased healthy food access contributes to our understanding of food access. We now understand what types of programs exist, what communities' attitudes and feelings are around current states of food access, and how, when, where and why members access programming and how each of these differ between urban and rural communities. It also revealed that there is a need for education



on and development of policies to affect food access at the community level – the stated purpose for the need for community food security theory (Anderson and Cook, 1999).

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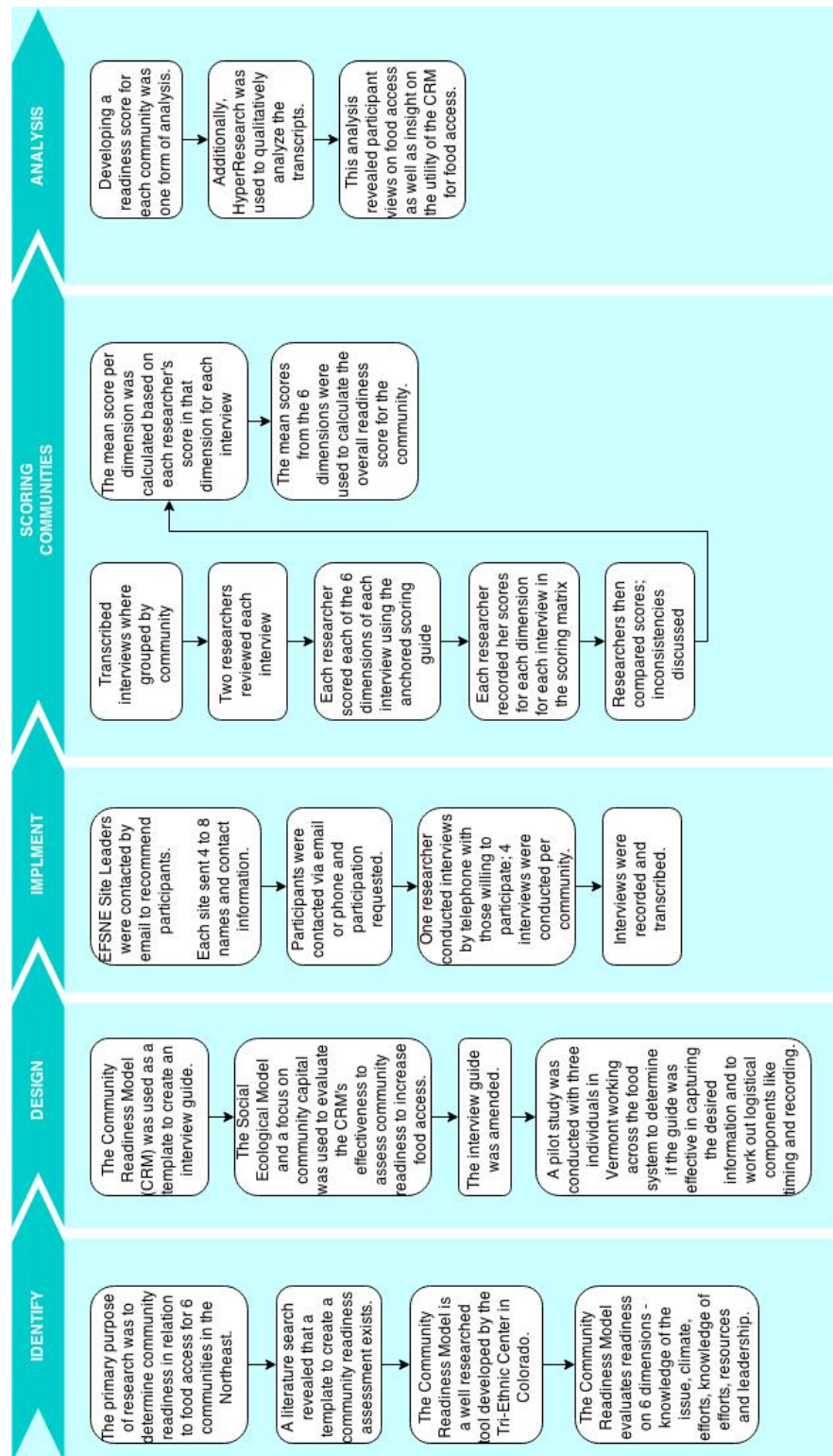
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## **APPENDICES**

## Appendix A. Figure 2. CRM Methodology Overview



**Appendix B. Table 2. 9-Point Readiness Scale, Descriptions and Strategies**

SCORE	STAGE	DESCRIPTION	GOAL	STRATEGIES
1	No awareness	The need for increased healthy food access is not generally recognized by the community or leaders as a problem (or it may truly not be an issue).	To raise awareness of the issue.	<ul style="list-style-type: none"> <li>One-on-one visits with community leaders and members.</li> <li>Visit existing and established small groups to inform them of the issue.</li> <li>Make one-on-one phone calls to potential supporters.</li> </ul>
2	Denial/resistance	At least some community members recognize that there is a need for increased access to healthy food, but there is little recognition that this need is a local concern.	To raise awareness that the problem or issue exists in this community	<ul style="list-style-type: none"> <li>Continue one-on-one visits encouraging those you've talked with to assist.</li> <li>Approach and engage local educational/health outreach programs to assist in the effort with flyers, posters, or brochures.</li> <li>Begin to point out media articles that describe local critical incidents.</li> </ul>
3	Vague awareness	Most community members feel that there is a local concern over the need to increase healthy food access, but there is no immediate motivation to do anything about it.	To raise awareness that the community can do something.	<ul style="list-style-type: none"> <li>Present information at local community events and unrelated community groups.</li> <li>Post flyers, posters, and billboards.</li> <li>Begin to initiate your own events (pot lucks, potlatches, etc.) to present information on the issue.</li> <li>Conduct informal local surveys/interviews with community people.</li> </ul>
4	Preplanning	There is clear recognition that something must be done to increase access to healthy foods, and there may even be a group addressing it. However, efforts are not focused or detailed.	To raise awareness with concrete ideas to combat the condition.	<ul style="list-style-type: none"> <li>Visit and invest community leaders in the cause.</li> <li>Review existing efforts in community (curriculum, programs, activities, etc.) to determine who benefits and what the degree of success has been.</li> <li>Conduct local focus groups to discuss issues and develop strategies.</li> <li>Increase media exposure.</li> </ul>
5	Preparation	Active leaders begin planning in earnest. The community offers modest support of existing efforts to increase access to healthy food.	To gather existing information with which to plan strategies.	<ul style="list-style-type: none"> <li>Conduct school and community food surveys.</li> <li>Sponsor a community picnic to kick off the effort.</li> <li>Present in-depth local statistics.</li> <li>Conduct public forums to develop strategies.</li> <li>Utilize key leaders and influential people to speak to groups.</li> </ul>
6	Initiation	Enough information is available to justify efforts. Activities/programming are under way to increase access to healthy foods.	To provide community specific information.	<ul style="list-style-type: none"> <li>Conduct in-service training for professionals.</li> <li>Plan publicity efforts associated with start-up of program or activity.</li> <li>Attend meetings to provide updates on progress of the effort.</li> <li>Conduct consumer interviews to identify service gaps and improve existing services.</li> <li>Begin the search for resources and/or funding.</li> </ul>
7	Stabilization	Food access activities/programming are supported by administrators or community decision makers and staff are trained and experienced.	To stabilize efforts and programming.	<ul style="list-style-type: none"> <li>Plan community events to maintain support for the issue.</li> <li>Conduct training for community members and professionals.</li> <li>Conduct quarterly meetings to review progress, modify strategies.</li> <li>Hold special recognition events for local supporters/volunteers.</li> <li>Prepare newspaper articles detailing progress and future plans.</li> <li>Networking between service providers, community systems.</li> </ul>
8	Confirmation/expansion	Efforts are in place. Community members feel comfortable using services, and they support expansions. Local data are regularly obtained.	To expand and enhance services.	<ul style="list-style-type: none"> <li>Prepare a community profile of before and after statistics.</li> <li>Publish a localized program/services directory.</li> <li>Maintain a comprehensive database.</li> <li>Begin to initiate policy change through support of local city officials.</li> <li>Conduct media outreach on specific data trends related to the issue.</li> </ul>
9	High level of community ownership	Detailed and sophisticated knowledge exists about prevalence, causes and consequences of food access for all members of the community. Effective evaluation guides new directions.	To maintain momentum and continue growth.	<ul style="list-style-type: none"> <li>Diversify funding resources.</li> <li>Continue more advanced training of professionals and paraprofessionals.</li> <li>Continue re-assessment of issue and progress made.</li> <li>Utilize external evaluation and use feedback for program modification.</li> <li>Track outcome data for use with future grant requests.</li> <li>Continue progress reports for benefit of community leaders and local sponsorship.</li> </ul>
<p>* Descriptions, goals, and strategies adapted for the issue of increasing food access from Jumper-Thurman, P., Edwards, R.W., Plested, B.A., &amp; Oetting, E.R. (in press). Honoring the differences: Using community readiness to create culturally valid community interventions. <i>Handbook of Ethnic and Racial Minority Psychology</i>. Eds. Bernal, G., Trimble, J., Burlew, K., &amp; Leong, F.</p>				

## Appendix C. Table 3. Interview Guide, revised

DIMENSION	DEFINITION
<b>Community Knowledge about the Issue</b>	<b>To what extent do community members know about food access and how it impacts your community?</b>
	<ol style="list-style-type: none"> <li>1. On a scale of 1 to 10, how much knowledge do you think community members hold about their current level of food access?</li> <li>2. How much do community members know about this issue as it pertains to (<i>your community</i>)? For example, do they know how much it occurs locally, do they know the effects on family and friends?</li> <li>3. What type of information is available about increasing food access (e.g. newspaper articles, brochures, posters)?</li> <li>4. Are there local data available on how many people are affected by lack of food access in (<i>your community</i>)? If so, how do community members obtain this information?</li> </ol>
<b>Community Climate</b>	<b>What is the prevailing attitude of the community toward food access?</b>
	<ol style="list-style-type: none"> <li>1. Do you think community members believe that food access is an issue that should be addressed in the community?</li> <li>2. How might community members show support for current food access programming, e.g., passively or actively by being involved? What do you think is the overall attitude among members of your community regarding food access?</li> <li>3. Do community members want to see schools invest in nutrition or garden education?</li> <li>4. Do community members celebrate or critique any community groups who support or advocate for increased healthy food access and/or programs that strive to increase food access?</li> <li>5. What are the primary obstacles to increasing food access?</li> </ol>
<b>Community Efforts</b>	<b>To what extent are there efforts, programs, and policies that address the issue?</b>
	<ol style="list-style-type: none"> <li>1. Are there programs or activities developed by your community aside from the federally supported programs like SNAP, WIC, school lunch, etc. that increase food access?</li> <li>2. Who do these efforts serve? (For example, individuals of a certain age group, ethnicity, etc.)</li> <li>3. Would you say few, some or many participate in these efforts?</li> <li>4. Are there any segments of (<i>your community</i>) for which these efforts are or may appear to be inaccessible or unavailable? (For example, individuals of a certain age group, ethnicity, income level, geographic region).</li> <li>5. What are the strengths of these efforts?</li> <li>6. What are the weaknesses of these efforts?</li> <li>7. What formal or informal policies, practices and laws related to food access are in place in your community? (A “formal” policy would be an established policy in schools. An “informal” policy would be an unsaid rule or pattern of behavior.)</li> </ol>
<b>Community Knowledge of Efforts</b>	<b>To what extent do community members know about local efforts and their effectiveness, and are the efforts accessible to all segments of the community?</b>
	<ol style="list-style-type: none"> <li>1. Are community members aware of the food access programs? Please do not include members who are directly involved in planning or implementing efforts addressing food access.</li> <li>2. What do the community members know about these efforts or activities?</li> <li>3. Is information available to your community about the food access efforts? (e.g., pamphlets, bulletins, posted notices, meetings, etc.) Do community members take advantage of this information?</li> <li>4. Is anyone or any group in your community trying to get something started to address increasing food access? For example: Have any community members started discussing possible initiatives or efforts?</li> </ol>
<b>Resources for Efforts</b>	<b>To what extent are local resources – people, time, money, space, etc. – available to support efforts?</b>
	<ol style="list-style-type: none"> <li>1. How are current efforts to increase food access funded?</li> <li>2. Are you aware of any proposals or action plans that have been submitted for funding to address food access in (<i>your community</i>)?</li> <li>3. What other resources are available to address food access in (<i>your community</i>) (e.g., space, volunteers, experts on the issue)?</li> <li>4. Is anyone in the community looking into using these resources to address this issue or are they already being used? If they are not being used, would (<i>your community</i>) support using these resources to address increasing food access?</li> </ol>
<b>Leadership</b>	<b>To what extent are appointed leaders and influential community members supportive of the issue?</b>
	<ol style="list-style-type: none"> <li>1. Who are the leaders specific to this issue in your community?</li> <li>2. Using a scale from 1-10, how much of a concern is food access to the leadership of (<i>your community</i>); 1 being “no a concern at all” and 10 being “a very great concern”?</li> <li>3. Does the leadership believe that food access is an issue that should be addressed in (<i>your community</i>)?</li> <li>4. How is the leadership involved in efforts regarding food access? For example, are leaders merely supportive or are they more actively involved (e.g., are they involved in a committee, do they speak out publicly, have they allocated resources to address the issue)?</li> <li>5. Do you think the leadership is willing to support additional efforts? If so, how might they do that?</li> </ol>

## Appendix D. Scoring Tools Matrix

Community: \_\_\_\_\_

Scorer: \_\_\_\_\_

Interview #	1	2	3	4	5	6	7	8	9	Avg Score for this Dimension
<b>Community Knowledge about the Issue</b> To what extent do community members know about the causes of the problem, consequences, and how it impacts your community? Q's: 2, probe										
<b>Community Climate</b> What is the prevailing attitude of the community toward the issue? Helplessness, responsibility, and/or empowerment? Q's: 1, 19, 19a, 19b										
<b>Community Efforts</b> To what extent are there efforts, programs, and policies that address the issue? Q's: 8, 9										
<b>Community Knowledge of the Efforts</b> To what extent do community members know about local efforts and their effectiveness, and are the efforts accessible to all segments of the community? Q's: 16, 17, 19										
<b>Resources Related to the Issue</b> To what extent are local resources – people, time, money, space, etc. – available to support efforts? Q's: 21, 21, 22, 23, 24										
<b>Leadership</b> To what extent are appointed leaders and influential community members supportive of the issue? Q's: 32, 33, 34, 35										
Avg Readiness Score across all 6 Dimensions										

## ***Anchored Scoring Guide***

### **Community Knowledge about the Issue**

*(Those directly involved in local efforts are not included in the definition of “community members”.)*

- 1 Community members have **no** knowledge about the issue.  
-  
-  
-
- 2 **Only a few** community members have **any knowledge** about the issue.  
-  
-  
-
- 3 Community members have only **vague knowledge** about the issue (e.g. they have some awareness that the issue can be problem).  
-  
-  
-
- 4 Community members have **limited knowledge** about the issue (e.g., they have some awareness that the issue can be problem and they know some limited information about causes, consequences, signs and symptoms.)  
-  
-  
-
- 5 Community members have **limited knowledge** about the issue **and** are **aware** that it occurs locally.  
-  
-  
-
- 6 Community members have **basic knowledge** about the issue (e.g., they know that the issue is a problem and they know some basic information about causes, consequences, signs and symptoms), **and** they are **aware** that it occurs locally.  
-  
-  
-
- 7 Community members have **basic knowledge** about the issue **and** have **some knowledge** about **local prevalence**.  
-  
-  
-
- 8 Community members have **more than basic knowledge** about the issue (e.g. they know more than basic information about causes, consequences, signs and symptoms) **and** have **significant knowledge** about **local prevalence**.  
-  
-  
-
- 9 Community members have **detailed knowledge** about the issue, are **aware of its effect** on the community, and have **significant knowledge** about **local prevalence**.

### **Community Climate**

*(Those directly involved in local efforts are not included in the definition of “community members”.)*

- 1 The community believes that the issue is not a concern.  
-  
-  
-
- 2 The community believes that this issue **is** a concern, in general, but believes that it **is not** a concern in this community.  
**OR**  
Community believes that this issue is a concern in this community, but doesn't think it can or should be addressed.  
-  
-  
-
- 3 The community **believes** that this issue is a concern in the community and that something **may have** to be done to address it. There is no immediate motivation to act.  
-  
-  
-
- 4 The community **acknowledges** that this issue is a concern in the community and that something **should** be done to address it.  
-  
-  
-
- 5 The attitude in the community is “We **are concerned** about this and **we want to do** something about it”.  
-  
-  
-
- 6 The attitude in the community is “This **is** our responsibility”, and some community members are **involved** in addressing the issue.  
-  
-  
-
- 7 The attitude in the community is “We **have taken** responsibility”. There is **ongoing** community involvement in addressing the issue.  
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-  
-
- 8 The majority of the community **strongly** supports efforts or the need for efforts. Participation level is high. “We need to continue our efforts and make sure what we are doing is effective.”  
-  
-  
-
- 9 **All** major segments of the community are highly supportive. Community members are actively involved in evaluating and improving efforts and they demand accountability.

**Existing Community Efforts** (programs or activities)



- 1 There are no efforts addressing the issue or any planning of efforts or motivation to begin efforts.  
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-  
-
- 2 A few community members recognize the need to initiate some type of effort but the community is, as a whole, resistant to developing any efforts.  
-  
-  
-
- 3 A few community members recognize the need to initiate some type of effort, but there is no immediate motivation to do anything.  
-  
-  
-
- 4 Some community members have met and have begun a discussion of developing community efforts, but with no particular plan.  
-  
-  
-
- 5 One or more efforts are being planned.  
-  
-  
-
- 6 One or more efforts have been implemented.  
-  
-  
-
- 7 One or more efforts have been running for several years.  
-  
-  
-
- 8 Several different programs, activities and policies are in place, covering different age groups and reaching a range of people.  
-  
-  
-
- 9 Evaluation plans are routinely used to measure the effectiveness of the efforts, and the results are used to make changes and improvements.

## Community Knowledge of the Efforts

*(Those directly involved in local efforts are not included in the definition of “community members”.)*

- 1 There are no local efforts for the community to be aware of.
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- 
- 
- 
- 2 Community has no knowledge about local efforts addressing the issue.
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- 
- 
- 3 **A few** community members have at least heard about local efforts, but **know little about them**. For example, they know local efforts exist and may recognize their names, but they have little other knowledge.
- 
- 
- 
- 4 **Some** community members have at least heard about local efforts, but **know little about them**. For example, they know local efforts exist and may recognize their names, but they have little other knowledge.
- 
- 
- 
- 5 **Most** community members have at least heard about local efforts. For example, they know local efforts exist and may recognize their names, but they have little other knowledge.
- 
- 
- 
- 6 **Most** community members have at least **basic** knowledge of local efforts. For example, they can identify specific efforts and their basic purposes.
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- 
- 
- 7 **Most** community members have **more than basic** knowledge of local efforts, including names of specific efforts, basic purposes, target audiences, and other specific information about the efforts.
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- 
- 
- 8 **Most** community members have **considerable** knowledge of local efforts, including the level of program effectiveness.
- 
- 
- 
- 9 **Most** community members have **considerable and detailed** knowledge of local efforts, including the level of program effectiveness and evaluation data on how well the different local efforts are working and their benefits and limitations.

**Resources Related to the Issue (people, money, time, space, etc.)**

- 1 There are **no** resources available for dealing with the issue.  
-  
-  
-
- 2 There are no resources although a few community members are beginning to look for resources.  
-  
-  
-
- 3 There are **one or two possible** resources (such as a community room). Community members may or may not be looking into using these resources to address the issue.  
-  
-  
-
- 4 There are **some** resources available. Some community members are looking into using these resources.  
-  
-  
-
- 5 There are **some** resources available. Some community members are actively working to secure these resources; for example, they may be soliciting donations, writing grant proposals, and seeking volunteers.  
-  
-  
-
- 6 Resources have been obtained and/or allocated to support efforts to address this issue.  
-  
-  
-
- 7 A considerable part of allocated resources are from sources that are expected to provide **continuous** support.  
-  
-  
-
- 8 A considerable part of allocated resources are from sources that are expected to provide **continuous** support. Community members are looking into **additional** support to implement new efforts.  
-  
-  
-
- 9 Diversified resources and funds are secured, and efforts are expected to be ongoing. There is **additional** support for **further** efforts.

**Leadership (includes elected and appointed leaders & influential community members)**

- 1 Leadership believes that the issue **is not** a concern.  
-  
-  
-
- 2 Leadership believes that this issue **is** a concern, in general, but believes that it **is not** a concern in this community.  
**OR**  
Leadership believes that this issue is a concern in this community, but doesn't think it can or should be addressed.  
-  
-  
-
- 3 Leadership **believes** that this issue is a concern in the community and that something **may have** to be done to address it.  
-  
-  
-
- 4 Leadership **acknowledges** that this issue is a concern in the community and that something **has to be done** to address it.  
-  
-  
-
- \*5 Leadership is involved in or actively supportive of **planning** of efforts (possibly as part of a committee or group that addresses this issue) or is trying to get something started.  
-  
-  
-
- 6 Leadership is involved in or actively supportive of **implementing** efforts or is seeking resources so that planned efforts can be implemented.  
-  
-  
-
- 7 Leadership is involved in or actively supportive of **continuing** current efforts **and** is providing or finding resources for efforts to become self-sufficient.  
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-  
-
- 8 Leadership is actively participating in **expanding** or **improving** efforts.  
-  
-  
-
- 9 Leadership is continually reviewing evaluation results of the efforts and is modifying financial support accordingly.

## Score Calculation

Community: \_\_\_\_\_ Scorer: \_\_\_\_\_ Date: \_\_\_\_\_

**COMBINED SCORES:** For each interview, the two scorers should discuss their individual scores and then agree on a single score. This is the COMBINED SCORE. Record it below and repeat for each interview in each dimension. Then, add across each row and find the total for each dimension. Use the total to find the calculated score below.

Interviews	#1	#2	#3	#4	#5	#6	TOTAL
Dimension A							
Dimension B							
Dimension C							
Dimension D							
Dimension E							
Dimension F							

**CALCULATED SCORES:** Use the combined score TOTAL in the table above and divide by the number of interviews conducted. Add the calculated scores together and enter it under total.

TOTAL Dimension A \_\_\_\_ ÷ \_\_\_\_ # of interviews = \_\_\_\_  
TOTAL Dimension B \_\_\_\_ ÷ \_\_\_\_ # of interviews = \_\_\_\_  
TOTAL Dimension C \_\_\_\_ ÷ \_\_\_\_ # of interviews = \_\_\_\_  
TOTAL Dimension D \_\_\_\_ ÷ \_\_\_\_ # of interviews = \_\_\_\_  
TOTAL Dimension E \_\_\_\_ ÷ \_\_\_\_ # of interviews = \_\_\_\_  
TOTAL Dimension F \_\_\_\_ ÷ \_\_\_\_ # of interviews = \_\_\_\_

Total Dimension Score: \_\_\_\_

**OVERALL STAGE OF READINESS:** Take the TOTAL calculated dimension score and divide by 6 (the number of dimensions). Use the list of stages below to match the result with a stage of readiness.

Remember, round down instead of up.

TOTAL Calculated Score \_\_\_\_ ÷ 6 = \_\_\_\_

**COMMENTS, IMPRESSIONS, and QUALIFYING STATEMENTS** about the community:

Score Stage of Readiness
1 No Awareness
2 Denial / Resistance
3 Vague Awareness
4 Preplanning
5 Preparation
6 Initiation
7 Stabilization
8 Confirmation / Expansion
9 High Level of Community Ownership